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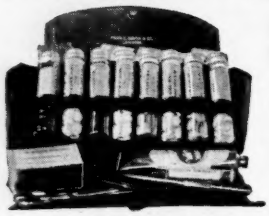

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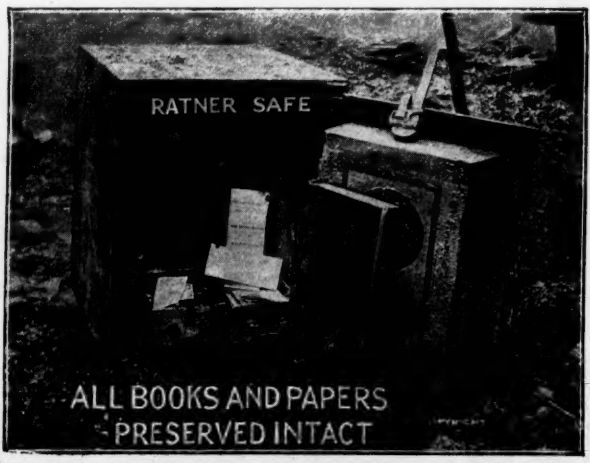

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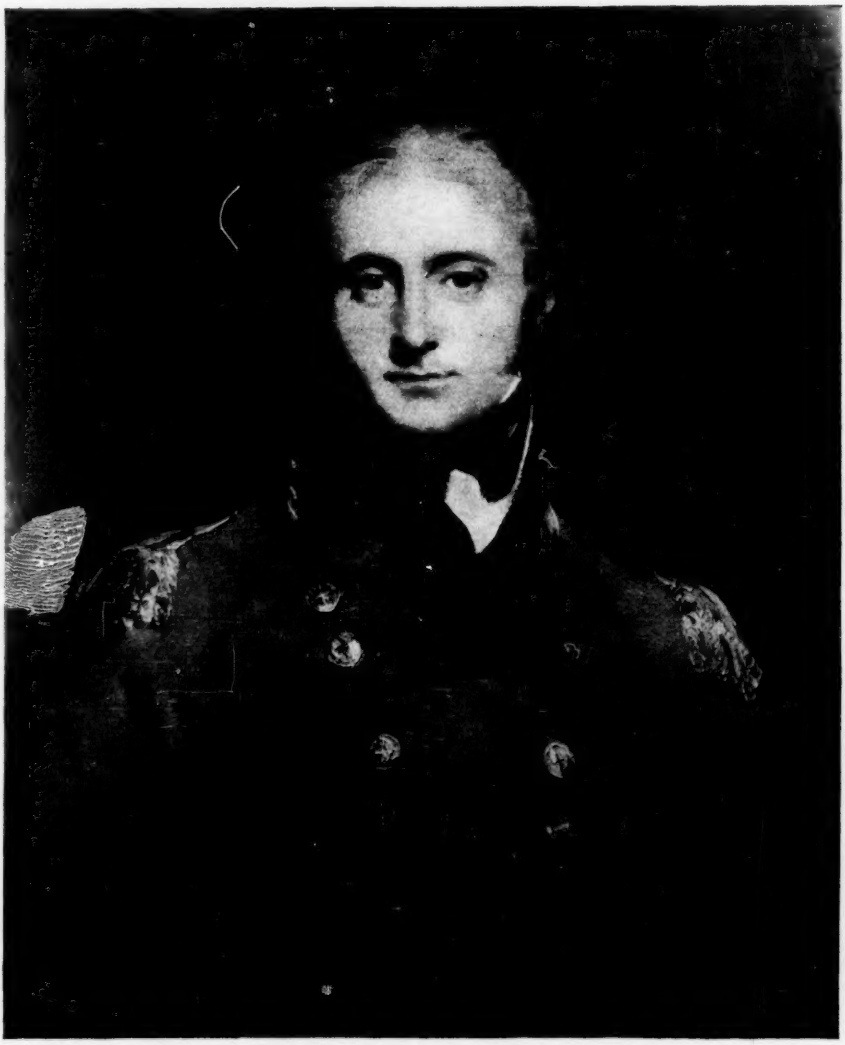


LIEUT.-GENERAL SIR JOHN MOORE, K.B.

From the Portrait by Sir Thomas Lawrence, in the National Portrait Gallery.
By kind permission of Mr. Emery Walker.

THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. LIII. JANUARY, 1909. No. 371.

[*Authors alone are responsible for the contents of their respective Papers.*]

SECRETARY'S NOTES.

I. OFFICERS JOINED.

The following Officers joined the Institution during the month of December:—

Lieutenant A. F. A. N. Thorne, Grenadier Guards.
Gentleman Cadet D. Wynyard, R.M.C.
Major H. C. de la M. Hill, East Kent Regiment.
Lieutenant W. E. Day, Royal Engineers.
Second-Lieutenant F. L. Holmes, South Staffordshire Regiment.
Captain J. T. Weatherby, Oxfordshire Light Infantry.
Lieutenant S. B. Mainguy, R.N.
A. Woollright, Esq., late Lieut. 4th Battalion Middlesex Regiment.
Captain A. H. Ollivant, R.G.A.
Lieutenant C. E. Pierson, R.F.A.
Captain H. L. C. Baldwin, Indian Army.
Major W. G. Winwood, D.S.O., 5th Dragoon Guards.
Captain R. H. Mangles, D.S.O., West Surrey Regiment.
Gentleman Cadet J. E. De Kantzow, R.M.A.
Commander H. W. Kenrick, R.N.R.
Lieutenant J. Halfpenny, Royal Inniskilling Fusiliers.
Major C. D. Christopher, A.S.C.
Colonel G. M. Mackenzie, late Royal Inniskilling Fusiliers.
Captain D. H. Blundell-Hollinshead-Blundell, M.V.O., King's Royal Rifle Corps.
Second-Lieutenant N. B. Elliott-Cooper, Royal Fusiliers.

Lieutenant R. F. Adam, R.F.A.
Captain T. P. Milne-Home, Highland Light Infantry.
Captain J. S. Cunningham, Middlesex Regiment.
Captain D. S. MacInnes, D.S.O., Royal Engineers.
Lieutenant R. E. W. Kirby, R.N.
Major d'A. C. Brownlow, Indian Army.

II. SUMMARY OF MEMBERS.

The Council has pleasure in reporting that during the past year 250 Officers joined the Institution. There were 130 withdrawals and 108 deaths, of whom 32 were Life Members, making an increase on the year of 12 members. The total number of members on December 31st was 5,420.

The details of Officers joining are as follows:—

Regular Army	180
Royal Navy	30
Territorial Army and Volunteers	17
Special Reserve and Militia	11
Yeomanry	5
R.N.R. and R.N.V.R.	4
Royal Marines	3
	250

It is hoped that Members will not relax their energy in the direction of introducing new Members.

III. GOLD MEDAL ESSAY, 1909 (MILITARY.)

Owing to unavoidable circumstances, the Council regrets being unable to announce the subject of the Military Essay for 1909 in this number of the JOURNAL. A communication will be made to the Daily Press and to the Service Journals as soon as possible.

IV. ROYAL PROCESSION TO PARLIAMENT.

On the occasion of His Majesty the King opening Parliament in state in February the Museum will be closed to the Public until after the Royal Procession has returned. Members of the Institution may admit personally two friends to the Museum. The Institution Building will be open to Members as usual.

V. TRAFALGAR LETTER.

It is regretted that in the JOURNAL for last November no mention was made of the fact that the French officer's letter there reproduced had been deposited in the Museum by the Rev. R. P. Barron, with whose permission it was published. This gentleman has contributed many interesting Trafalgar relics to the Museum.

VI. ADDITIONS TO THE MUSEUM.

1. A Sketch of the Battle of Preston Pans (21st September, 1745), drawn by Lieut.-General Jordan Wren, Colonel 41st Regiment of Foot, who was present as a Staff Officer at the battle, and died in 1784.—*Given.*

2. A Painting in Oils, executed in 1837, by M. Scurr, of a Cutter under Sail, taking in her gaff topsail.

—Given by J. E. Jones, Esq.

3. A Painting in Oils of a British Frigate of about the year 1830, giving chase to a French Brig.—*Given by J. E. Jones, Esq.*

4. Model of the fore-mast of H.M.S. *Victory*, made from the wood of the ship for Vice-Admiral John Drake, and shewing the wounds inflicted in the mast at the Battle of Trafalgar. Admiral Drake was present as Midshipman and Master's Mate on board the *Defiance*, both in Sir Robert Calder's Action (22nd July, 1805), and at Trafalgar. He was subsequently at the Battle of Navarino as First-Lieutenant of the *Albion*, and died in the rank of Vice-Admiral in 1863.

The Model, having passed to his son, came into the possession of the donor as the next direct representative.

—Given by John Sargeaunt, Esq.

5. Turkish Yataghan with engraved metal handle.

—Given by John Sargeaunt, Esq.

VII. CHANGE OF RANK OR ADDRESS.

The attention of Members is called to the necessity for communicating any change of address or rank to the Secretary. It is essential that such changes should be made in writing. If such changes be not notified, Members will themselves be responsible if their JOURNALS fail to reach them through being wrongly addressed, and Officers are requested to write their names distinctly on such communications. Several signatures have recently been received which it has not been possible to decipher; while two notifications of change of address were received last week without signature.

VIII. THE EDITOR.

Captain H. G. Garbett having, in consequence of the redistribution of the duties of the Staff, vacated the post of Librarian, which he had held in conjunction with the Editorship for 12 years, the Council place on record their appreciation of the valuable service rendered by Captain Garbett to the Institution during his tenure of that office.

IX. MILITIA BADGES, BUTTONS, etc.

The Council is anxious to form a collection of Militia Shako and Helmet Plates, Shoulder Belt Badges, Buckles, Buttons, etc., especially those worn previous to 1881, and would be glad if Members possessing any of these articles would kindly present them to the Museum. There is already on exhibition a considerable number, but it is hoped that the collection be made as complete as possible.

X. MUSEUM CATALOGUE.

A Third, and considerably augmented, Edition of the Museum Catalogue has recently been published. It is bound in cloth with gilt letters, the price being one shilling.

GENERAL SIR JOHN MOORE, K.B.

ON the 16th January, 1809, just one hundred years ago, Sir John Moore was killed at Corunna, in the hour of victory. It is fitting that on this centenary of his death some allusion should be made in the JOURNAL of the R.U.S.I. to the career of one who was "great as a soldier, great as a patriot, and even greater as a man."

Few men have led a more strenuous life than he did; few soldiers have had a greater or more varied experience of war. His preparation for a military career was not that which a Sandhurst or Woolwich cadet gets in these days, but it was certainly not inadequate. His schooling commenced early at the Glasgow High School, but at the age of 11 he went abroad with his father (who was physician to the young Duke of Hamilton, travelling for his health), and with him he wandered for four years through France, Germany, Switzerland, and Italy. His education the while was by no means neglected (part of the time he was at school in Geneva), and besides learning how to draw "tolerably well," and having "a very good notion of geography, arithmetic, and the easier parts of practical geometry," he acquired a very thorough mastery of the French language, and some knowledge of German and Italian. He could also "dance, fence, and ride, with uncommon address." As a boy his great idea always was to be a soldier and "thrash the Monsieurs." In March, 1776, at the age of 15, he received his commission as ensign in the 51st Regiment, and early in the following year joined at Minorca. After only a few months with the 51st he was transferred to the 82nd, a battalion newly raised for service in the American War by his friend the Duke of Hamilton. He thus found himself in Nova Scotia, and it was there, at Penobscot, in 1779, that he received his "baptism of fire," and, in repelling an attack on a picquet under his command, displayed a coolness and courage which even then marked him out for advancement.

After the peace of 1783, Moore went on half-pay, and shortly afterwards entered Parliament, representing a group of Scottish burghs. In the meantime, however, he had been brought back on full pay, and in 1788 was reappointed to his old regiment, the 51st, to the command of which he succeeded in 1790. In March, 1792, he proceeded with his regiment to Gibraltar. From the time he became its Commanding Officer, he had laboured assiduously to train and instruct his officers and men, and to establish a real discipline, based upon a high sense of duty, and not (as was too often the case in those days) upon a fear of punishment. His efforts had been so successful that in the end of September, 1793, we find him saying in a letter to his

father: "I have got the machine into as good order as I can, and I wish to have it used." The opportunity was not long delayed. Early in the following year he was employed against the French in Corsica, and wounded (for the first but by no means for the last time) in the storming of the Martello Fort at the siege of Calvi. From this time forward he was constantly engaged in active operations in various parts of the world. In 1795 he went out as Brigadier-General to the West Indies under Sir Ralph Abercromby, and took a principal part in the capture of St. Lucia. On his return home he was employed in Ireland during the Rebellion. In 1799 he took an honourable part in the expedition to Holland, and was very severely wounded in the fighting at Egmont-op-Zee. Whatever may be said of other commanders in these operations, they greatly enhanced Moore's reputation in the Army. The military secretary to the Duke of York wrote at this time to his father:—

> "His conduct in the serious action of the 2nd October (Egmont-op-Zee) has raised him, if possible, higher than he before stood in the estimation of the Army. Everyone admires and loves him, and you may boast of having as your son the most amiable man and the best general in the British Service. This is a universal opinion, and does not proceed from my partiality alone."

Moore's next active employment was in Egypt in 1800-01, under his old commander, Sir Ralph Abercromby. Here, at the battle of Alexandria, he was again wounded, and Abercromby was killed. It was for his skill and valour in this campaign that he received the K.B. in 1804.

After the peace of Amiens (27th March, 1802) Moore found himself in command of a large camp at Shorncliffe, which was the school in which he devised and carried out those improvements in drill, discipline, dress, arms, formations and movements, which formed the basis of the excellence of the famous Light Division in the Peninsular War. Years before he had discussed with Sir Ralph Abercromby the principles of the system of training which he now for the first time had the opportunity to put into practice. "He possessed in a remarkable degree the power of awakening the faculties of those under him. His materials at this time were the 43rd, 52nd, and Rifle Regiments, and he so fashioned them that afterwards, as the Light Division under Wellington, they were found to be soldiers unsurpassable, perhaps never equalled. . . . . It was a great school. There officers were formed for command, and soldiers acquired such discipline as to become an example to the Army and proud of their profession."

In June, 1806, Sir John Moore (he had received the K.B. in 1804) went to Sicily as Second-in-Command in the Mediterranean to General Fox, and in September of the following year he was sent in command of an expedition to help the Portuguese against the French invasion under Junot: but the proffered help was

declined, and Moore came on to England with his troops without landing in the Peninsula.

In May, 1808, he was despatched, with 10,000 men, on what proved to be an abortive mission to Gothenburg to help the Swedes against the Russians; but again his troops were not allowed to land, and more serious events having developed with great rapidity in the Peninsula, he was recalled in haste and ordered out to Portugal, for which country he sailed in July, 1808.

Space does not permit more than the briefest allusion to the chapter of strange events by which three generals—Sir Hew Dalrymple, Sir Harry Burrard, and Sir Arthur Wellesley—all his seniors, were at this juncture recalled from the scene of operations. It must suffice to say that the terms of the Convention of Cintra caused such grave dissatisfaction in England that the three Generals named were ordered home to face an inquiry into the facts, and Sir John Moore was thus left in chief command. At the same time, Portugal, having been cleared of the enemy, it was determined to carry the war into Spain, and Sir John Moore was accordingly ordered in October to take the field in Northern Spain with 20,000 men, and was informed that Sir David Baird, with another 10,000, would be sent to join him *viâ* Corunna. He was at the same time instructed that after junction with Baird he must co-operate with the Spanish armies, and be guided by circumstances as to the course he should pursue.

Rarely has a general set out on an expedition beset by such difficulties as those which hampered Sir John Moore on this occasion. With a raw army and an inexperienced staff; with Allies not merely differing from the British in customs, language, and discipline, but divided by jealousies and blinded by arrogance; with the civil authorities who should have helped him, culpably apathetic and contemptibly inactive; and, finally, with a depleted treasure chest and miserably deficient transport; he was launched into an unknown country, at the commencement of the worst and wettest season of the year, to meet an enemy strong in numbers, seasoned by experience, and led by generals already renowned in war.

Sir David Baird's plight at Corunna was little better, though his burden of responsibility may have been something less. He had neither transport nor money. The local authorities were, in the words of Napier, "unfriendly, crafty, and fraudulent, the peasantry suspicious, rude, disinclined towards strangers, and indifferent to public affairs. A few shots only were required to render theirs a hostile instead of a friendly greeting."

Under these adverse and depressing circumstances was a start made on the 26th October. Salamanca had been fixed for the junction with Baird. By the 20th November Moore had safely accomplished his arduous march of 350 miles and reached that place; but Baird had not then arrived, and it was not until just a month later—on the 20th December—that the two com-

manders at last effected a junction at Mayorga. Moore's march —and Baird's by Moore's orders—had been directed upon this point because, notwithstanding the desperate situation in which he found himself, he believed that the city of Madrid was still holding out, and might be depended on to make a stubborn and prolonged defence. He conceived, therefore, the design of an advance against the comparatively weak corps of Soult on the Carrion river. This would strike at the French communications and line of supply through Burgos; should arrest Napoleon's advance on Portugal; should succour Madrid; and should afford time to the south of Spain to organise its defences. Napier describes it as "a daring enterprise stamped with the seal of genius, political and military."

On the 23rd of December the British force had approached Soult closely, and was preparing to attack him, when the alarming news reached Moore that Napoleon himself with 50,000 men was closing in behind him, *viâ* the Escurial Pass. He instantly appreciated his peril and at once stopped the movement against Soult, and commenced the famous "Retreat to Corunna." He was only just in time, and it was, in fact, largely due to a sudden flood in the Esla, which rendered it unfordable for 24 hours, that he was not very roughly handled by the troops under the Emperor at Benevente. From this time misfortune and disaster dogged his footsteps. The terrible weather which prevailed, the superiority of the enemy in a powerful cavalry, the forced marches which were made in the endeavour to reach as quickly as possible the mountainous country beyond Astorga, where the dangers from that cavalry would be neutralised; these combined to demoralise the troops and to wreck discipline. Drunkenness, too, prevailed to a frightful extent, and the great wine vaults of Bembibre and Villa Franca proved even more fatal to the men than the sword of the enemy.

At last, on the 10th January, Corunna was reached. Here a fresh disappointment awaited Moore. The transports which had been ordered round from Vigo had not arrived. It was not till the 14th that they hove in sight. The sick and wounded were put on board by the 15th, and it was arranged to embark the army on the following day. But this was prevented by Soult attacking. A hard-fought fight ensued, which resulted in a complete victory for the British, but at the cost of the life of their gallant commander. He was struck down by a cannon shot towards the close of the struggle, but he would not allow himself to be carried to the rear until he had watched the fight for some time, and had satisfied himself that it was going well for his men. To his old friend, Colonel Anderson, who was with him in his last moments, he observed: "You know I always wished to die in this way," and later, when assured of victory, he said: "It is a great satisfaction to me to know that we have beaten the French." Almost his last words, uttered, says Napier, with an unsubdued spirit, as if anticipating the baseness of his posthumous calumniators, were: "I hope

the people of England will be satisfied! I hope my country will do me justice!" A few minutes after this he died, and, wrapped in his military cloak, was buried the same night in the citadel of Corunna. The guns of the enemy paid his funeral honours. "No British Commander," says Sir H. E. Bunbury, "was ever more popular with his officers; none have left a more lasting impress upon the troops trained under them. In the Peninsula, and long afterwards, to have been "one of Sir John Moore's men" carried with it a prestige quite *sui generis*."

Marshal Soult bore generous testimony to the skill and valour of his foe, and Napoleon said of him: "His talent and firmness alone saved the army in Spain from destruction. He was a brave soldier, an excellent officer, and a man of talent."

During the night following the battle of Corunna the army was embarked and sailed for England, the Spaniards loyally holding the place till the fleet had put to sea; but the misfortunes of the brave men who had fought so heroically were not ended yet. Hardly had the ships sailed when they were scattered by a terrible storm. Many were wrecked, and the remainder, driving up Channel, were glad to put into any port that offered. The soldiers thus thrown on shore were spread from the Land's End to Dover. Draggled, dirty, and diseased, their miserable state soon became the topic of every letter, and the theme of every newspaper along the coast (Napier, I., 357). Their gloomy narratives, the usual exaggerations of men just escaped from perils and distresses, spread despondency throughout the land, and Sir John Moore's conduct of the campaign was loudly blamed on every side.

But his memory has long since been done justice to. To judge a Commander by the event alone is as unjust as it is unreasonable. In Moore's case we have but to consider, on the one hand, his insufficient means, his small numbers, his gigantic task: and, on the other hand, to recollect the extraordinary and incredible difficulties by which he was surrounded; the treachery, folly, and wilful deception practised on him by the Spanish authorities; the glaring incapacity of the Spanish generals; and the irritating and ill-timed interference of the British Ambassador, Mr. Frere; to form some faint picture of the embarrassing and often desperate situations in which he found himself in this arduous campaign. His firmness of purpose, and his pure and elevated patriotism, alone enabled him at this crisis to hold on a brave and right and honourable course.

That he saved Portugal in her hour of need by drawing Napoleon and his legions after him into Northern Spain, with deliberate purpose, cannot be doubted; and calamitous though was his retreat to Corunna, yet it was conducted with sagacity, intelligence, and fortitude; and it must ever be remembered to his credit, and to that of his troops, that it was carried through, amid all the disorders which characterised it, without suffering any defeat *from the enemy*, and without losing a gun. Finally,

when standing at bay at Corunna, when as yet the transports had not arrived, and the case seemed desperate indeed, when some of his generals advised the opening of negotiations with Soult as the only means of escape from their plight, Moore spurned the suggestion with indignation. "His high spirit," says Napier, "and clear judgment, revolted at the idea, and he rejected the degrading advice without hesitation, preferring for the honour of England to risk a battle, where, like Nelson's Trafalgar, Victory and Death held out their arms to receive him, and laurels were plentifully blended with cypress."

H. D. HUTCHINSON,
Lieut.-General.

NOTE.—The following interesting relics and mementoes of Sir John Moore are to be seen in the Museum of the Royal United Service Institution :—

Desk and Letter. Letter dated 11th January, 1804.

Crimson Silk Sash, which was worn by Sir John Moore at the Battle of Coruña, and stained with his life-blood. It was taken from his body by his A.D.C., Sir George T. Napier, and used by him in lowering the body into the grave, and the inscription on the sash is in his hand-writing.

Prayer Book, with its original cover, used at the Burial Service over Sir John Moore, at Coruña.

An Officer's Silk Sash used in supporting Sir John Moore when carried in a blanket from the battle-field of Coruña to the Citadel after he was mortally wounded.

Silk Sash belonging to Lieut.-Colonel Paul Anderson, 60th Rifles, used in lowering the body of Sir John Moore into the grave on the ramparts of Coruña, 16th January, 1809.

Decorations of Sir John Moore :—

Gold Collar and Badge of the Most Honourable Order of the Bath (K.B.), conferred on 14th November, 1804.

Star of the Most Honourable Order of the Bath (K.B.).

Diamond Star, representing that of the Order of the Bath, purchased by Sir John Moore's Officers for 350 guineas and presented to him in 1804.

Riband of the Most Honourable Order of the Bath (K.B.), worn by Sir John Moore.

Imperial Ottoman Order of the Crescent, awarded to Sir John Moore for his services in Egypt, in 1801.

General Officer's Gold Medal for the Battle of Coruña, awarded to Sir John Moore (*post mortem*).—The medal bears on the obverse, Britannia, wearing a helmet and seated on the globe, her right hand extended, holding a wreath of laurel; in her left is a palm branch. To her right is the lion of England; and, on the left, a round shield charged with the crosses of the Union banner. The reverse bears a wreath of laurel surrounding "Coruña" and the date of the Battle. On the rim is engraved: "Lieutenant-General Sir John Moore, K.B."

BATTLE TACTICS OF THE SINGLE LINE.

By Lieutenant A. C. DEWAR, R.N.

On Wednesday, 11th November, 1908.

Vice-Admiral Sir C. CAMPBELL, K.C.M.G., C.B., D.S.O., in the Chair.

THE subject of this lecture is not new. It is our old friend the Single Line. It is part of a larger paper dealing with—

The Tactics of Approach;
The Tactics of the Single Line;
The Tactics of Group Systems (such as Admiral Fournier);
The Tactics of Support Systems (such as Captain Borresens).

The object of the paper, however, is not to specially advocate any particular formation but to emphasise the principles to which every formation must conform and to apply them more particularly to Single Line. What is the main object of all Tactical formations? To use a certain weapon with maximum effect on the enemy. In this case the weapon is the gun; and that gun should always be pointing at the enemy. The primary object of Battle Tactics is the utilisation of all available gunfire to the highest possible degree. Any movement which, without a definite and distinct objective interferes with or hinders the gunfire is tactically faulty.

FIRE ARC PRINCIPLE.

The first and fundamental principle, then, of Tactics is:—

All guns possible pointing at the enemy.

This is the Maximum Arc Principle—all maximum arcs or an equal proportion of maximum arcs directed on the enemy.

RANGE PRINCIPLE.

The next principle to be laid down is the Range Principle. All ships must take an equal part in the action; the gunfire

must be distributed between all—not one ship firing at 10,000 yards and another at 7,000 yards. All ships should be as nearly as possible at the same range, and the direction of the column must be adjusted accordingly.

These two Principles, the Maximum Arc Principle and the Range Principle, apply to all formations, and contain in themselves all the Law and the Prophets of Tactics.

A formation which conforms to them can never be radically bad.

A formation which does not conform to them can never be really good.

Three Positions.

The following terms require a short explanation. By a Position of Equality will be meant that fleets are exerting an equal percentage of their fire arcs under similar range conditions. By the expression, a Position of Advantage (or Disadvantage), will be meant that a fleet's Maximum Arc is operating in the enemy's minor arc. By a Position of Fire Arc or Range Superiority (or Inferiority), will be meant that the Fire Arc or Range Conditions are superior or inferior.

Formation Requirements.

So long as the formation at any particular moment permits of both Fire Arc and Range principles being followed, it is a satisfactory one; but there are certain qualities which will enable such conditions to be more easily attained or maintained.

These are:—

Elasticity, giving the greatest liberty of movement to all vessels.

Flexibility, giving the power of rapidly changing the direction and course.

and perhaps most important of all

Simplicity, ability to keep station safely and easily under battle conditions.

Single Line formations certainly fulfil these requirements to a very great extent, and Single Line Tactics are, therefore, particularly worthy of investigation.

Battle Approach.

This lecture does not deal with the subject of approach; but I must ask you to accept a proposition with regard to that phase, viz.:

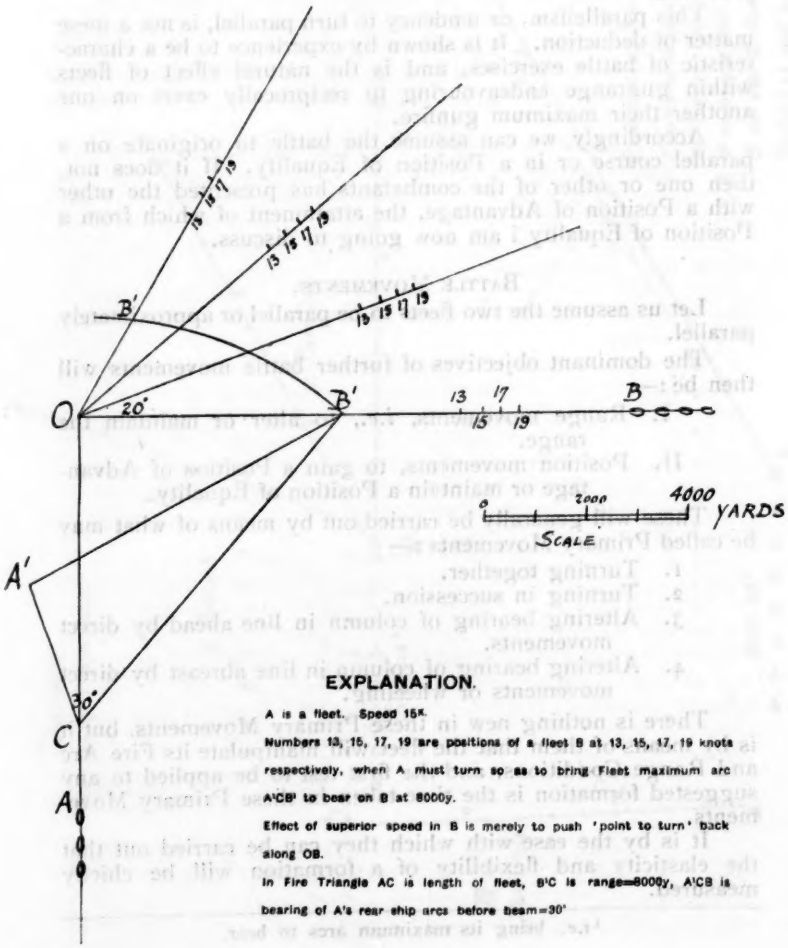
A fleet when it has reached a suitable range can turn its Maximum Arcs on the enemy and can enter battle in a Position of Equality.

By Equality is meant an equality of Fire Arc and Range Conditions only. There is no doubt that a potential superi-

I. Approach.

DIAGRAM APPROACH.

OBJECT—To show superior speed cannot prevent slower fleet bringing maximum arcs to bear in approach.



EXPLANATION.

A is a fleet. Speed 15K.

Numbers 13, 15, 17, 19 are positions of a fleet B at 13, 15, 17, 19 knots respectively, when A must turn so as to bring Fleet maximum arc A'CB' to bear on B at 8000y.

Effect of superior speed in B is merely to push 'point to turn' back along OB.

In Fire Triangle AC is length of fleet, B'C is range=8000y, A'CB is bearing of A's rear ship arcs before beam=30°

ority is gained by coming into action ahead of the enemy, as his movements are thereby circumscribed and can be calculated; but this does not give a superiority in gunfire.

However slow a fleet is, it has it in its power to bring the enemy on the beam, for the simple reason that a fleet's maximum arcs can be swung through 90 degrees, far faster than an opponent can alter the bearing by steaming. (Diagram I.)

If one fleet maximates[1] on another at effective range, the other will be forced either to turn parallel or approximately parallel into a position of Equality or contravene the Fire Arc and Range Principles, which it can only afford to do if its opponent's shooting is very bad or its own ships especially well protected.

This parallelism, or tendency to turn parallel, is not a mere matter of deduction. It is shown by experience to be a characteristic of battle exercises, and is the natural effect of fleets within gunrange endeavouring to reciprocally exert on one another their maximum gunfire.

Accordingly we can assume the battle to originate on a parallel course or in a Position of Equality. If it does not, then one or other of the combatants has presented the other with a Position of Advantage, the attainment of which from a Position of Equality I am now going to discuss.

Battle Movements.

Let us assume the two fleets to be parallel or approximately parallel.

The dominant objectives of further battle movements will then be:—

I. Range movements, *i.e.*, to alter or maintain the range.

II. Position movements, to gain a Position of Advantage or maintain a Position of Equality.

These will generally be carried out by means of what may be called Primary Movements:—

1. Turning together.
2. Turning in succession.
3. Altering bearing of column in line ahead by direct movements.
4. Altering bearing of column in line abreast by direct movements or wheeling.

There is nothing new in these Primary Movements, but it is by means of them that the fleet will manipulate its Fire Arc and Range Conditions, and the first test to be applied to any suggested formation is the time taken in these Primary Movements.

It is by the ease with which they can be carried out that the elasticity and flexibility of a formation will be chiefly measured.

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[1] *i.e.*, bring its maximum arcs to bear.

II. Replies to T. Movements.

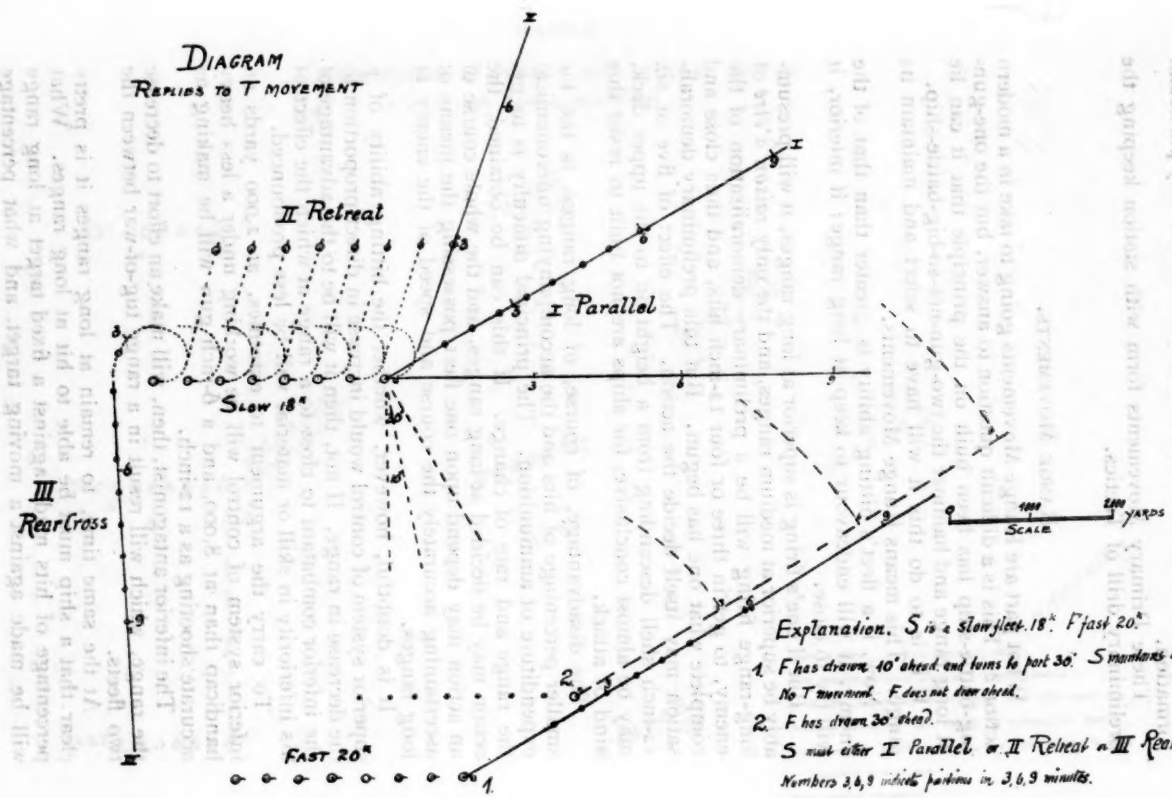


Diagram
Replies to T movement
II Retreat
I Parallel
Slow 18k
III
Rear Cross
Fast 20k
Scale
yards
Explanation. S is a slow fleet. 18k. F fast 20k.
1. F has drawn 10° ahead. and turns to port 30°. S maintains course. No T movement. F does not draw ahead.
2. F has drawn 30° ahead.
S must either I Parallel or II Retreat or III Rear Cross.
Numbers 3, 6, 9 indicate positions in 3, 6, 9 minutes.

I am not going further into these Primary Movements, as it is easy to investigate the time taken to carry them out, and thus obtain an important indication of the value of any particular formation.

These Primary Movements form with station keeping the preliminary drill of Tactics.

Range Movements.

What part are Range Movements going to take in a modern action? This is a difficult question to answer, but the one-gun-big-battle-ship has been built on the principle that it can lie at long range and hammer the two-gun-not-so-big-battle-ship.

If it is to do this it will have to select and maintain its range. This means Range Movements.

Now, if a fleet's hitting ability is greater than that of the enemy, it will endeavour to keep at long range; if inferior, it will try to close.

But if one's firing is superior at long ranges, it will presumably be superior at medium ranges, and the only *raison d'être* of long-range firing will be a preliminary demoralisation of the enemy, to get in three or four 12-inch hits, and then close and complete what one has begun. But this preliminary demoralisation may itself decide the action. The effect of five or six 12-inch shell descending from a height on to the upper deck, may be almost conclusive, for ships are not built to resist this kind of attack.

The disadvantage, of course, of long ranges, is the far smaller percentage of hits and the accompanying uneconomical expenditure of ammunition. The principal difficulty is to get the range and rate of change. If this can be obtained, the action may be decided at long ranges, and the whole course of an action may depend upon one fleet possessing the means of ascertaining accurately the course and speed of the enemy at long ranges.

It is doubtful, however, whether the hitting ability of a superior system of control would increase in direct proportion to the decrease in range. If not, then it will be to the advantage of the inferior combatant to close to a range at which the effect of his inferiority in skill or material will be less pronounced.

To carry the argument to extremes, at 2,000 yards an inferior system of control will be working under a less heavy handicap than at 8,000, and a 6-inch gun will be making as accurate shooting as a 12-inch.

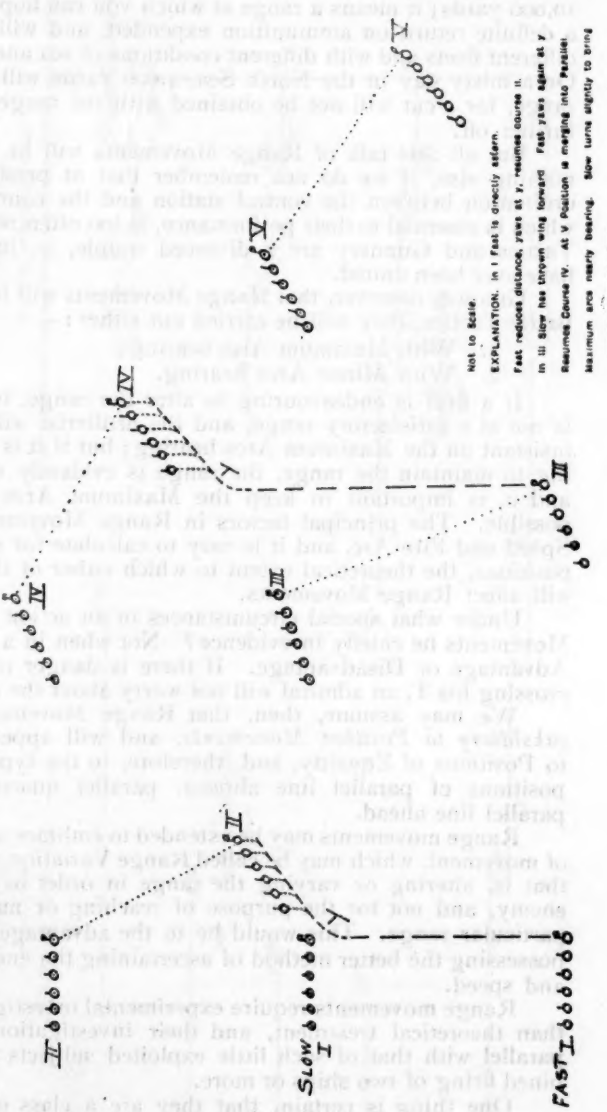
The inferior antagonist, then, will make an effort to decrease the range, which will result in a range tug-of-war between the two fleets.

At the same time, to remain at long ranges it is pretty clear that a ship must be able to hit at long ranges. What percentage of hits made against a fixed target at long range will be made against a moving target, and what percentage

III. Sketch of Typical Pursuit and Retreat Tactics.

DIAGRAM

ILLUSTRATION OF PURSUIT AND RETREAT TACTICS with Yawing Movements


FAST I
SLOW I
II
III
IV
V
Not to Scale.
EXPLANATION. In I Fast is directly astern.
Fast reduces distance, yaws at y, resumes course II.
In III Slow has thrown wing forward. Fast yaws again at y
Resumes Course IV. At V Position is merging into Parallel
Maximum arc nearly bearing. Slow turns slightly to bring
maximum arc to bear.
Fast imitates movement.

of hits made on a moving target will reach the enemy's fleet? It may be said with confidence, not a great number.

Long range does not necessarily mean 8,000, 9,000, or 10,000 yards; it means a range at which you can hope to obtain a definite return on ammunition expended, and will vary with different fleets and with different conditions of sea and visibility. On a misty day in the North Sea, 4,000 yards will be a long range, for a cut will not be obtained with the range-finder any further off.

But all this talk of Range Movements will be words and nothing else, if we do not remember that at present the co-ordination between the control station and the conning tower, which is essential to their performance, is too often non-existent. Tactics and Gunnery are a divorced couple, if, indeed, they have ever been united.

Granted, however, that Range Movements will form part of Battle Tactics, they will be carried out either:—

1. With Maximum Arcs bearing;
2. With Minor Arcs bearing.

If a fleet is endeavouring to alter the range, it is clear it is not at a satisfactory range, and the artillerist will not be so insistent on the Maximum Arcs bearing; but if it is endeavouring to maintain the range, the range is evidently satisfactory, and it is important to keep the Maximum Arcs bearing if possible. The principal factors in Range Movements will be Speed and Fire Arc, and it is easy to calculate for any relative positions, the theoretical extent to which either of these factors will affect Range Movements.

Under what special circumstances in an action will Range Movements be chiefly in evidence? Not when in a Position of Advantage or Disadvantage. If there is danger of an enemy crossing his T, an admiral will not worry about the range.

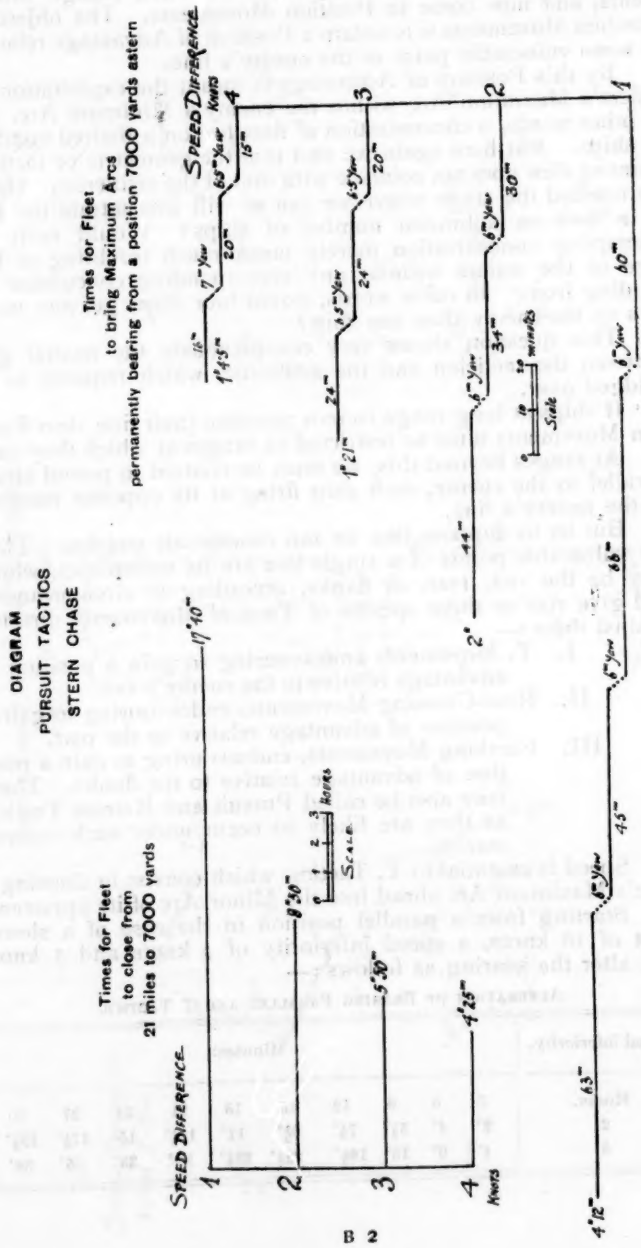
We may assume, then, that Range Movements will be *subsidiary to Position Movements,* and will appertain rather to Positions of Equality, and, therefore, to the typical parallel positions of parallel line abreast, parallel quarter-line, and parallel line ahead.

Range movements may be extended to embrace another class of movement, which may be called Range Variation Movements, that is, altering or varying the range in order to confuse the enemy, and not for the purpose of reaching or maintaining a particular range. This would be to the advantage of the fleet possessing the better method of ascertaining the enemy's course and speed.

Range movements require experimental investigation rather than theoretical treatment, and their investigations must run parallel with that of such little exploited subjects as the combined firing of two ships or more.

One thing is certain, that they are a class of movement which will require exhaustive practice and a great deal of co-operation between the artillerist and the tactician, if they are going to influence the modern battle.

IV. Time in P. and R. Tactics to bring Maximum Arcs to Bear.



Position Movements.

We have dealt with Parallel Tactics and Range Movements, and now come to Position Movements. The object of Position Movements is to obtain a Position of Advantage relative to some vulnerable point of the enemy's line.

By this Position of Advantage is meant the exploitation of a fleet's Maximum Arc within the enemy's Minimum Arc, or, in other words, a concentration of fleet fire on a limited number of ships. But here again we find that the geometric or tactical point of view does not coincide with that of the artillerist. Have we reached the stage where we can at will concentrate the fire of a fleet on a limited number of ships? Would such an attempt at concentration merely mean much troubling of the face of the waters without any corresponding concussion of rending iron? In other words, would four ships get any more hits on the enemy than one ship?

This question shows very conspicuously the mental gap between the tactician and the artillerist, which requires to be bridged over.

If ships at long range cannot combine their fire, then Position Movements must be restricted to ranges at which they can.

At ranges beyond this, we must be content to pound along parallel to the enemy, each ship firing at its opposite member in the enemy's line.

But let us suppose that we can concentrate our fire. Then the vulnerable points of a single line are its extremities, which may be the van, rear, or flanks, according to circumstances, and give rise to three species of Tactical Movements directed against them:—

I. T. Movements endeavouring to gain a position of advantage relative to the enemy's van.

II. Rear-Crossing Movements, endeavouring to gain a position of advantage relative to the rear.

III. Flanking Movements, endeavouring to gain a position of advantage relative to the flanks. These may also be called Pursuit and Retreat Tactics, as they are likely to occur under such circumstances.

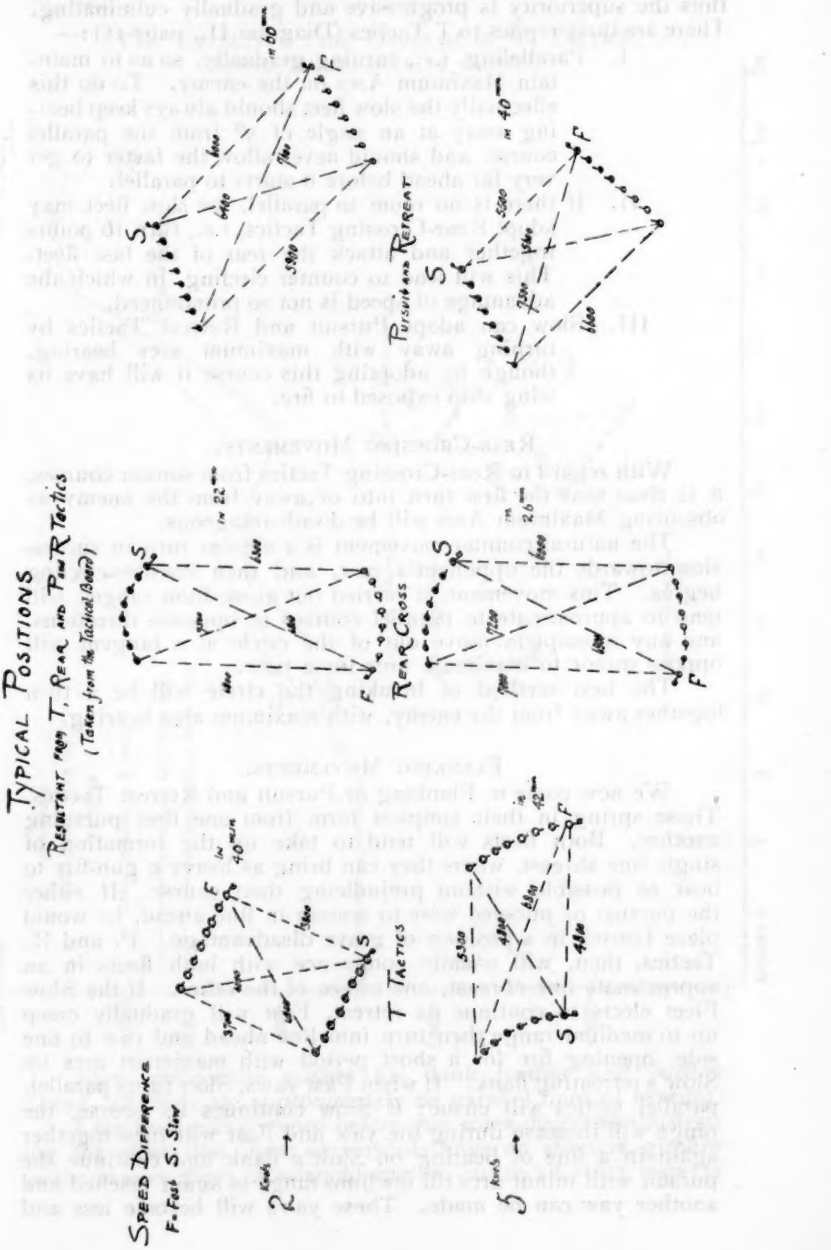
Speed is essential to T. Tactics, which consist in drawing a fleet's Maximum Arc ahead into the Minor Arc of its opponent.

Starting from a parallel position in the case of a slower fleet of 18 knots, a speed inferiority of 2 knots and 5 knots will alter the bearing as follows:—

Alteration of Bearing Parallel and T Tactics.

Speed inferiority.	Minutes.									
Knots.	3	6	9	12	15	18	21	24	27	30
2	2°	4°	5½°	7½°	9½°	11°	13½°	15°	17½°	19½°
5	4°	9°	13°	18½°	22½°	25½°	29°	33°	35°	38°

V. Typical Positions Resultant from T., Rear Cross, P. and R. Tactics.



An advantage of T. Tactics is that Fire Arc and Range conditions remain the same, while the distance decreases, and thus the superiority is progressive and gradually culminating. There are three replies to T Tactics (Diagram II., page 15):—

I. Paralleling, *i.e.*, turning gradually, so as to maintain Maximum Arcs on the enemy. To do this effectually the slow fleet should always keep bearing away at an angle of 5° from the parallel course, and should never allow the faster to get very far ahead before it starts to parallel.

II. If there is no room to parallel, the slow fleet may adopt Rear-Crossing Tactics, *i.e.*, turn 16 points together and attack the rear of the fast fleet. This will lead to counter circling, in which the advantage of speed is not so pronounced.

III. Slow can adopt Pursuit and Retreat Tactics by turning away with maximum arcs bearing, though by adopting this course it will have its wing ship exposed to fire.

Rear-Crossing Movements.

With regard to Rear-Crossing Tactics from similar courses, it is clear that the first turn into or away from the enemy as obscuring Maximum Arcs will be disadvantageous.

The natural counter-movement is a similar turn in succession towards the opponent's rear, and then counter-circling begins. This movement, if carried out at medium ranges, will tend to approximate to parallel courses in opposite directions, and any attempt to move out of the circle at a tangent will oppose minor to maximum arcs for a time.

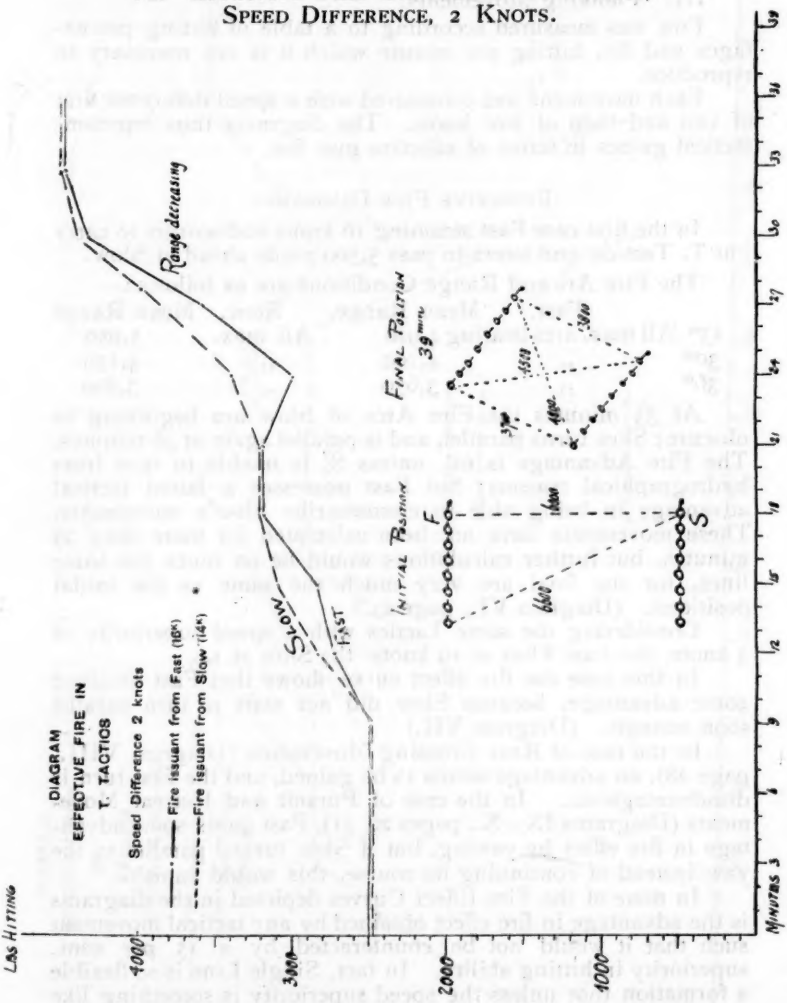
The best method of breaking the circle will be a turn together away from the enemy, with maximum arcs bearing.

Flanking Movements.

We now come to Flanking or Pursuit and Retreat Tactics. These spring in their simplest form from one fleet pursuing another. Both fleets will tend to take up the formation of single line abreast, where they can bring as heavy a gun-fire to bear as possible without prejudicing their course. If either the pursuer or pursued were to remain in line ahead, he would place himself in a position of grave disadvantage. P. and R. Tactics, then, will usually commence with both fleets in an approximate line abreast, one astern of the other. If the Slow Fleet elects to continue its retreat, Fast will gradually creep up to medium range then turn into line ahead and yaw to one side, opening fire for a short period with maximum arcs on Slow's retreating flank. If when Fast yaws, Slow turns parallel, parallel tactics will ensue; if Slow continues its course, the range will increase during the yaw and Fast will turn together again in a line of bearing on Slow's flank and continue the pursuit with minor arcs till medium range is again reached and another yaw can be made. These yaws will become less and

less divergent till finally Fast creeps up so far on one flank that maximum arcs will bear. (Diagrams III. and IV., pages 17, 19.)

VI. Effective Fire Diagram in T. Tactics, Speed Difference, 2 Knots.



Slow meanwhile pushes his flank further and further ahead, till fleets are approximately on parallel lines of bearing.

I am now going to put before you some diagrams illustrating the effect that these movements have on effective gunfire in the case of fleets of unequal speeds, but in all other respects

equal. Each fleet consisted of eight vessels of the *Cæsar* class, starting from a parallel Position of Equality, manœuvring to gain a Position of Advantage, and employing:—

I. T. Movements. II. Rear-Crossing Movements.
III. Flanking Movements.

Fire was measured according to a table of hitting percentages and lbs. hitting per minute which it is not necessary to reproduce.

Each movement was considered with a speed difference first of two and then of five knots. The diagrams thus represent tactical games in terms of effective gun fire.

Effective Fire Diagrams.

In the first case Fast steaming 16 knots endeavours to carry out T. Tactics, and steers to pass 5,500 yards ahead of Slow.

The Fire Arc and Range Conditions are as follows:—

	Fast.	Mean Range.	Slow.	Mean Range
15m	All max. arcs bearing	4,920	All max.	5,050
30m	,,	4,100	,,	4,150
36m	,,	3,650	,,	3,800

At 33 minutes the Fire Arcs of Slow are beginning to obscure; Slow turns parallel, and is parallel again at 36 minutes. The Fire Advantage is nil, unless S. is unable to turn from hydrographical reasons; but Fast possesses a latent tactical advantage in being able to circumscribe Slow's movements. These movements have not been calculated for more than 39 minutes, but further calculations would be on much the same lines, for the final are very much the same as the initial positions. (Diagram VI., page 23.)

Considering the same Tactics with a speed superiority of 5 knots, the Fast Fleet at 19 knots, the Slow at 14.

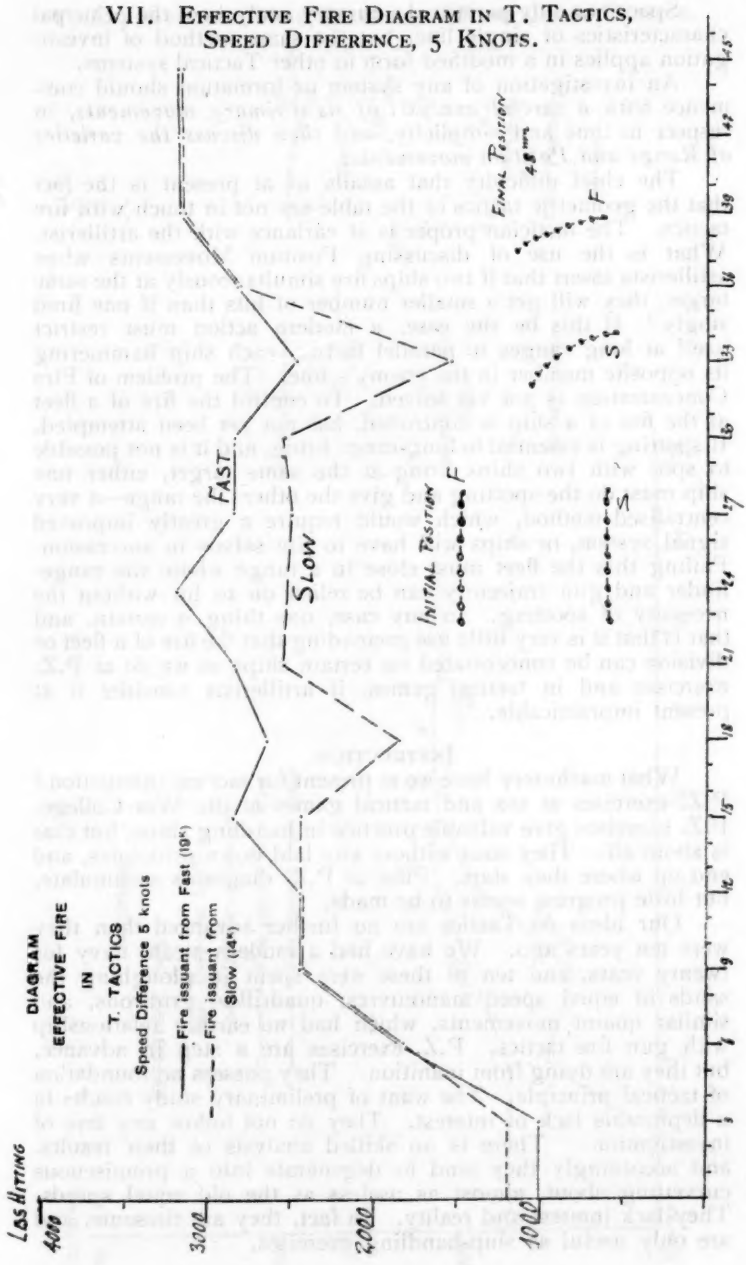
In this case the fire effect curve shows that Fast obtained some advantage, because Slow did not start to turn parallel soon enough. (Diagram VII.)

In the case of Rear Crossing Movements (Diagram VIII., page 28), no advantage seems to be gained, and the first turn is disadvantageous. In the case of Pursuit and Retreat Movements (Diagrams IX., X., pages 29, 31), Fast gains some advantage in fire effect by yawing, but if Slow turned parallel to the yaw instead of continuing its course, this would vanish.

In none of the Fire Effect Curves depicted in the diagrams is the advantage in fire effect obtained by any tactical movement such that it would not be counteracted by a 15 per cent. superiority in hitting ability. In fact, Single Line is so flexible a formation that unless the speed superiority is something like one-quarter of the speed, very little tactical fire advantage can be obtained.

These various Tactical movements—Parallel, Range Movements, T., Rear-Crossing and Pursuit and Retreat, cover almost the whole field of single line tactics. (Diagram V., page 21.)

VII. Effective Fire Diagram in T. Tactics, Speed Difference, 5 Knots.



Space has only permitted a cursory analysis of the principal characteristics of single line, but the same method of investigation applies in a modified form to other Tactical systems.

An investigation of any system or formation should commence *with a careful analysis of its Primary movements,* in respect to time and simplicity, *and then discuss the varieties of Range and Position movements.*

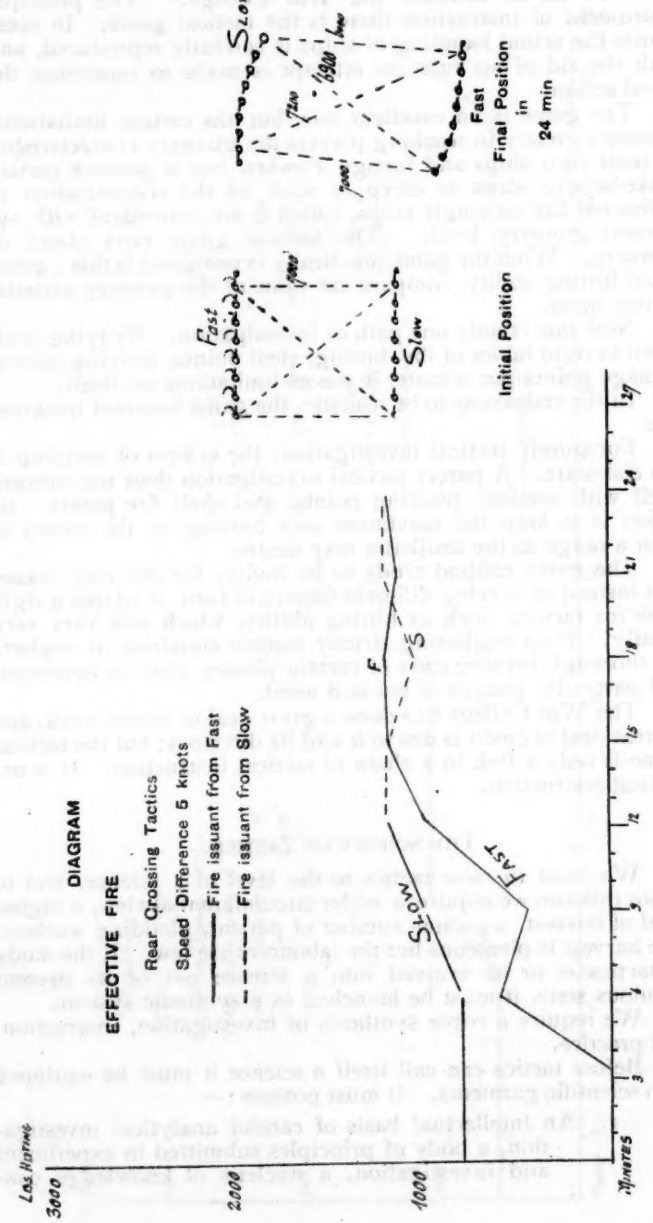
The chief difficulty that assails us at present is the fact that the geometric tactics of the table are not in touch with fire tactics. The tactician proper is at variance with the artillerist. What is the use of discussing Position Movements when artillerists assert that if two ships fire simultaneously at the same target, they will get a smaller number of hits than if one fired singly? If this be the case, a modern action must restrict itself at long ranges to parallel tactics, each ship hammering its opposite member in the enemy's line. The problem of Fire Concentration is not yet solved. To control the fire of a fleet as the fire of a ship is controlled, has not yet been attempted. If spotting is essential to long-range firing, and it is not possible to spot with two ships firing at the same target, either one ship must do the spotting and give the others the range—a very centralised method, which would require a greatly improved signal system, or ships will have to fire salvos in succession. Failing this the fleet must close to a range where the range-finder and gun trajectory can be relied on to hit without the necessity of spotting. In any case, one thing is certain, and that is that it is very little use pretending that the fire of a fleet or division can be concentrated on certain ships as we do at P.Z. exercises and in tactical games, if artillerists consider it at present impracticable.

Instruction.

What machinery have we at present for tactical instruction? P.Z. exercises at sea and tactical games at the War College. P.Z. exercises give valuable practice in handling ships, but that is about all. They start without any laid down principles, and end up where they start. Piles of P.Z. diagrams accumulate, but little progress seems to be made.

Our ideas on Tactics are no further advanced than they were ten years ago. We have had a modern steam navy for twenty years, and ten of these were spent in ploughing the sands of equal speed manœuvres, quadrilles, gridirons, and similar quaint movements, which had no earthly relationship with gun fire tactics. P.Z. exercises are a step in advance, but they are dying from inanition. They possess no foundation of tactical principle. The want of preliminary study results in a deplorable lack of interest. They do not follow any line of investigation. There is no skilled analysis of their results, and accordingly they tend to degenerate into a promiscuous curvetting about, almost as useless as the old equal speeds. They lack interest and reality. In fact, they are tiresome, and are only useful as ship-handling exercises.

VIII. Effective Fire Diagram in Rear Cross Tactics.



War College.

Now let us consider the War College. The principal instrument of instruction there is the tactical game. In these games the actual handling of ships is carefully reproduced, and with the aid of set rules an attempt is made to reproduce the naval action.

The game is an excellent one, but has certain limitations. It assists greatly in teaching players the gunnery characteristics of their own ships and foreign Powers, but it permits certain make-believe ideas to creep in such as the concentration of divisional fire on single ships, which is not coincident with our present gunnery level. The tactical game runs ahead of gunnery. What the game practically investigates is this: given equal hitting ability, compare the value of the gunnery material of two fleets.

Now this is only one path of investigation. By tying itself down to rigid tables of lbs. hitting, shell points, piercing points, damage points per minute, it places limitations on itself.

In the endeavour to be realistic, the game becomes imaginative.

For purely tactical investigation, the system of marking is too elaborate. A purely tactical investigation does not concern itself with armour, piercing points, and shell fire points. Its object is to keep the maximum arcs bearing on the enemy at such a range as the artillerist may desire.

The game method tends to be faulty, for the very reason that instead of varying different factors in turn, it adopts a rigid table for factors, such as hitting ability, which will vary very greatly. Then neglecting strictly tactical enquiries, it neglects the thorough investigation of certain phases, such as approach, and particular gauges of sea and wind.

The War College has done a great deal of sound work, and a great deal of credit is due to it and its directors; but the tactical game is only a link in a chain of tactical instruction. It is not tactical instruction.

The Science of Tactics.

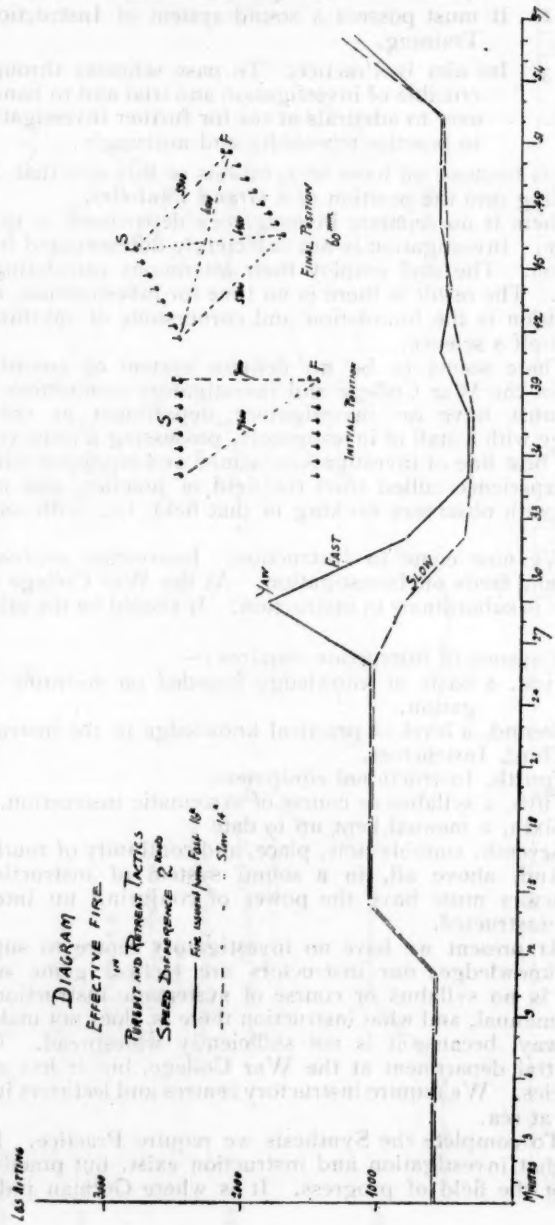
We want to raise tactics to the level of a science, and to attain this aim we require a wider circumferential view, a higher level of interest, a greater number of patient, plodding workers. The harvest is plenteous but the labourers are few. If the study of tactics is to be evolved into a science out of its present nebulous state, it must be launched as a synthetic system.

We require a triple synthesis of investigation, instruction and practice.

Before tactics can call itself a science it must be equipped with scientific garments. It must possess:—

1. An intellectual basis of careful analytical investigation, a body of principles submitted to experiment and investigation, a nucleus of knowledge con-

IX. EFFECTIVE FIRE DIAGRAM IN P. AND R. TACTICS, SPEED DIFFERENCE, 2 KNOTS.



stantly engaged in the exploration of further spheres of knowledge. This is Investigation.

2. It must possess a sound system of Instruction and Training.

3. Its aim is Practice. To pass schemes through the crucible of investigation and trial and to hand them over to admirals at sea for further investigation, or to practise repeatedly and untiringly.

It is because we have no synthesis of this sort that Tactics is drifting into the position of a *Grand Peut-être*.

There is no separate investigatory department in the War College. Investigation is not sufficiently differentiated from instruction. The staff employ their afternoons calculating shell points. The result is there is no time for investigation, and investigation is the foundation and cornerstone of anything that calls itself a science.

There seems to be no definite system of co-ordination between the War College and investigatory committees at sea. We must have an investigatory department at the War College with a staff of investigators, possessing a clear vision as to the best line of investigation, armed and equipped with facts and experience culled from the field of practice, and in close touch with observers working in that field, *i.e.*, with our fleets at sea.

We now come to Instruction. Instruction evolves itself from and feeds on Investigation. At the War College investigation is subordinate to instruction. It should be the other way about.

A system of instruction requires:—

First, a basis of knowledge founded on scientific investigation.

Second, a level of practical knowledge in the instructed.

Third, Instructors.

Fourth, Instructional equipment.

Fifth, a syllabus or course of systematic instruction.

Sixth, a manual kept up to date

Seventh, suitable time, place, and continuity of routine.

And, above all, in a sound system of instruction, the instructors must have the power of conjuring up interest in those instructed.

At present we have no investigatory centre to supply us with knowledge; our instructors are tactical game markers, there is no syllabus or course of systematic instruction, there is no manual, and what instruction there is, does not make much headway, because it is not sufficiently widespread. There is a central department at the War College, but it has no good agencies. We require instructory centres and lecturers in all our fleets at sea.

To complete the Synthesis we require Practice. It is for this that investigation and instruction exist, but practice alone is not the field of progress. It is where German industry is

X. EFFECTIVE FIRE DIAGRAM IN P. AND R. TACTICS, SPEED DIFFERENCE, 5 KNOTS.

supported by organised investigation and instruction that it outstrips England, which neglects the other two paths.

Practice must be supplemented by careful analytical and inductive investigation, and resolves itself into:—

Preliminary and instructional exercises.
Tactical exercises.
Investigatory exercises.

The first would consist of simple exercises, such as Station-keeping and Primary Movements. The second would practise methods accepted as sound, and constantly endeavour to perfect them. The third would test problems and methods supplied to them from the investigatory centre.

We are deficient in investigatory work, firstly, perhaps, because it is difficult to set a system of this sort in motion, and secondly, because so much talent is switched off into inventive and other channels.

But what is it, above all, that any such system, as has been sketched, requires? Interest and intelligence. We may build up the finest system in the world, but without interest it will be like a great battle-ship on a slip without water to launch it. Do naval officers take sufficient interest in tactics? I leave the tactical exercise room lying dark and deserted, evening after evening, at the War College in our principal naval port, with several hundreds of naval officers not more than ten minutes off to answer.

Either our officers do not take much interest in tactics, or they have very little faith in the instructional capabilities of the tactical game. Every effort, then, must be made to excite interest. When, where, and how is interest excited? It is excited chiefly in the young, in the field of practice and reality, by encouragement and setting a premium on effort.

We can obtain anything by setting a premium on it. We have set a premium on fire control, and the result is that the system is constantly evolving and improving. Where fire control was 15 years ago, there tactics is now.

Officers at sea must be invited to write on tactical subjects. Officers at the War College should be invited to write, and good essays should receive prizes and commendation, and should be printed with the author's name.

There is no premium set on talent. In fact, we are almost afraid to hint that one officer may be more intelligent than another. The result is, that instead of a strong current of interest flowing through the channel of tactics, it has become a slack and almost stagnant backwater.

To rouse a revivifying stream of interest, we require a system of lectures, and encouragement in our principal fleets. On each station a course of lectures, issued by the Admiralty with lantern slides, should be given half-yearly, and a station prize for a tactical essay.

An Admiralty prize should be offered for the best station essays, which should be printed and circulated.

Each year a report should be issued, giving the progress made with an account of the questions still to be investigated.

If we were to set these four great fans of

Investigation,
Instruction,
Practice,
Encouragement,

all revolving at full blast in the sphere of tactics, in three or four years the whole subject would be raised to a very different level.

After all, there is no such thing as an uninteresting subject, the only thing that exists is uninterested persons.

The following, for instance, are all matters suitable for investigation :—

1. Tactics of Approach, and possibilities of obtaining the gauges of sea and wind.
2. Group formations.
3. The relative importance of Range Movements in battle, and their practical application.
4. The Tactics of an Extended Line.
5. Tactics of a Torpedo Craft supported line.
6. Tactics of Support, *i.e.*, fleets supporting one another but acting independently.
7. Conning tower and Signal Systems.

These problems should be issued with a short account of the bibliography of the subject, the present level of knowledge, and the line of most profitable investigation.

Without some such system as the above, we are left to fill up the gaps in our armour with the painted woodwork of make-believe.

Captain E. P. C. BACK, R.N. :—As nobody else rises to address the meeting, I should like to say a very few words. Many of us, I think, agree generally with what the lecturer has so well said this afternoon; but at the same time it seems to me that this lecture is rather one to study carefully when we see it in the JOURNAL, especially the diagrams, which it was difficult to fully comprehend when they were shown. I hope the technical nature of the lecture will not make officers lose sight of the more general remarks made in it. I do not know how many naval officers are here, but I think I speak for them when I say that generally we are very much in agreement with a great deal of what the lecturer said, at any rate I am personally. The Minister of Education said the other day that education teaches reticence. If that is the case, naval officers ought to be one of the best educated bodies of people in the world, because I am sure that they are very reticent; in fact, we do not write, lecture, or read, perhaps as much as we should.

Admiral The Hon. Sir EDMUND FREMANTLE, G.C.B., C.M.G. (Rear-Admiral of the United Kingdom) :—I am afraid I am not in a position to directly criticise this lecture, which is very full of technicalities. The lecturer ran over the diagrams rather quickly, and we are not able—at all

events, I was not able—to realise exactly in all cases what they meant. I am quite sure that he knew what they meant, and that he has digested the subject and studied it very thoroughly; but when we see the paper in the JOURNAL we shall be much better fitted to judge of it than we possibly can be from merely hearing the lecture and seeing the diagrams which have been shown, which, if we could have studied them, would have probably told us a great deal more than the words of the lecture. But we can gather one thing, at all events, and that is that the lecturer represents that we must not only study the subject but study it scientifically. There is no doubt about it that we have a tendency in this country almost always to take hold of the practical part of the subject. For instance, with regard to the war game—I do not know much about it, because I have not been through the course myself; I have not had that advantage which younger men have had—but we nowadays have the war game, which we make a part of practical work, but we do not always care to make the analytical investigations of which Lieutenant Dewar spoke. The result is that we get more or less certain general rules, which have been put forward by those who have studied the subject most, and then we work on those general rules in a practical way. It is not altogether a bad thing, but it is not quite the highest standard. We know that in Germany, not only with regard to naval affairs, but other affairs generally, they begin by a deep study of the question theoretically, which leads to different lines, and something which is very much better than the comparatively rule-of-thumb way in which we generally succeed in treating the subjects. Perhaps they may sometimes fail in the practical part, in which I think as a rule Englishmen are strong, whether it is on the question of science or the question of trade, or the question of war. I should like myself to have had a little more detailed account of the single line as regards other lines. That is a question which has been very much debated. It has always been held theoretically that the single line, from its adaptability or its pliability, has a great advantage over everything else. This was ruled so decisively in the 18th century that there were fighting instructions issued that we were always to be in the single line, and as they took a long time to form into line it led to indecisive actions. Theoretically the single line is undoubtedly the right thing with a limited number of ships, but when you have to deal with a very large number of ships it is almost impossible to concentrate everything in a single line. If a commander has as many as 27 ships, such as Nelson had at Trafalgar—and we may in these days get twenty or thirty ships under one control—it is a great question whether you should not break up the line and sacrifice the advantages which there are undoubtedly theoretically in the single line. We know that the Battle of Trafalgar was advisably fought in two lines. The reason why is pretty clear. It was, as Nelson always said, to complete the business thoroughly. Though theoretically there is so much to be said in favour of a single line, practically when we come to tactics we find that it has its limitations, and that you may afford—in fact you ought to afford in a big fleet—to break up the line. I should like the lecturer to have shown more plainly than he has done what he would have recommended in such a case as this: Supposing you have twenty ships, should you take adantage of the single line and keep to that only, or is the line so long that you will gain an advantage by dividing it, say, into two squadrons? Then there is another question which I do not think Lieutenant Dewar went into very thoroughly. Suppose there are, we will say, two fleets in parallel line (as he pointed out, you never get parallel lines), is it a good thing to concentrate your fire on one or two

ships, or is it advisable to distribute your fire? There is a good deal to be said on both sides. It has been held by many that if there are six ships acting against six ships, and that the six ships of one fleet are in the position that they can attack and concentrate their fire with some degree of completeness on one or two ships of the opposing fleet, presuming that no ship was more than about 7,000 yards off, that that would be the proper plan to adopt. I should like to ask the author whether in his opinion it would be the proper thing to attack those two ships and endeavour to sink them, and leave the other four ships entirely free, without any enemy to engage them, who would be firing at them; or, in his opinion, is it more desirable to divide your fire on the six ships, and so prevent any ship from feeling that she had no enemy to fight against? That is a point which I do not think the lecturer very much touched upon, and perhaps he will mention it in his reply. It seems to me that it would be a very practical question to work out what the probability of the damage is in those particular instances. It is theoretical of course, but we do endeavour to deal with these questions theoretically. Of course, what we always try to do is to get the T movement; but, as Lieutenant Dewar has pointed out, it is an extremely difficult thing to do. You get a great advantage over the enemy, but you have to presume when you are talking about the T movement that the enemy is going to allow you to take a great advantage of him. We do meet fools occasionally, but it is a very foolish thing to suppose that your enemy is going to act foolishly and that you are going to act wisely. It is far better to reverse that idea of things and to assume that you may act foolishly and that the enemy will get a little advantage over you. But what I want to ask Lieutenant Dewar is, what he would do then. How would he retrieve his position and make the best of a somewhat disadvantageous proceeding? I am afraid that most of us have failed to fully appreciate the value of this lecture, but I am sure that from the study which Lieutenant Dewar has given to the matter, from the diagrams which he gave us, and from the deep theoretical knowledge as well as practical knowledge which he evidently has of the subject, that when we read it in the JOURNAL we shall feel more indebted to him than we do now, and feel that he has done a great service in pointing out one or two things where he thinks we can make a further and deeper study of the subject which he has so well brought before us to-day.

Lieutenant A. C. DEWAR, in reply, said:—Admiral Fremantle mentioned a long single line, but that is not a question I touched on at all. That really comes into what I call the subject of tactics of support. If you are going to split the fleet up you will probably have two fleets. Either you would have what I call extended tactics—an extended single line with one fleet working ahead of the other—or you would have tactics of support—one fleet supporting the other, but both fleets acting independently. Tactics of support, as Admiral Fremantle pointed out, are naturally more important than tactics of single line. We know enough about single line tactics; we have learned a great deal about them practically; but tactics of support is a subject that must be investigated just in the same way as tactics of the single line have been. Admiral Fremantle has had a great deal of practical experience, and he knows the difficulty perhaps of working with a fleet of twenty ships in single line. I think myself it would be a very difficult thing to do; you would probably have to revert to tactics of support; but if you have got no tactics of support, then you cannot revert to them. Then Admiral

Fremantle asked whether you ought to distribute your fire, and each ship fire at its opposite number in the enemy's line, or whether, say, four ships ought to concentrate their fire on one ship, and so on. That is entirely a matter for the artillerist to decide. That is the kind of thing, if one was investigating the subject, I would turn over to the *Excellent*. I would say to them: "You must tell us all about this," and then they would carry out experiments and give us their results.

Admiral FREMANTLE:—It is related to tactics.

Lieutenant DEWAR:—Yes, it is very intimately related to tactics. I would not like to answer that question at all; in fact I cannot answer it. Should four ships concentrate their fire on one ship and allow themselves to be fired at by three other ships? So far as I have considered the matter, I would prefer each ship to fire at the ship which is nearest to it. You would then be expending your ammunition in the most economical fashion, for the shorter the range the more economical is the expenditure of the ammunition. If each ship fires at the ship nearest to it, I think that would probably be the best plan. If a ship was in difficulties, then I certainly think it would be an excellent plan to concentrate your fire on it, so that it would get knocked out of the water as soon as possible. In the case of a column altering course, the range of the altering course point ought to be very quickly picked up by the opposing fleet, and it would probably be a very advantageous thing to concentrate the fire on the altering course point. But there is no doubt that these things really require a great deal of practical experiment. I daresay that practical experiment is being made in our fleets, but naturally we are not going, as we may say, to "pipe" it here.

The CHAIRMAN (Vice-Admiral Sir C. Campbell):—I simply rise for the purpose of thanking Lieutenant Dewar for the very interesting lecture he has given us this afternoon. But before I do so I would like to make one or two observations on a few of the points that have been raised. Admiral Fremantle has referred to the diagrams which Lieutenant Dewar showed us. I also suffered with him owing to the quickness with which they were shown. They were naturally extremely difficult to follow, but the general tendency of them seemed to me to show the value of speed on the fire arc. They really did illustrate the difficult subject before us. They went to show that speed is a very important factor in tactics, which, after all, is what the lecture is about. I have been dealing with the question of the concentration of fire for a great many years, frequently in this Institution. It seems to me perfectly inconceivable as a tactician or a naval officer who has studied the subject for between twenty-five and thirty years, that anybody can argue that if you can concentrate the fire of three ships on one ship at any time that you are not going to have a crushing effect upon that ship and put her out of action altogether. The principle of concentration is, to my mind, definitely fixed, and you cannot get away from it. If you can by any means in your power concentrate the fire of two or three or four ships on one, and in that way wipe out seriatim three or four of the enemy's ships, you destroy that portion of the enemy's fleet and thus reduce his power. I am entirely in favour of the concentration of a large number of ships on a smaller, as far as you can carry it out, and thus destroy the enemy piecemeal. I do not think there is any doubt in anybody's mind, who is going to fight a fleet action that he will endeavour to fight it in a single line. If

you have a preponderating force you will put the fast ships to lead the line and while you are playing with the enemy on his quarters and flank, you will direct the fast ships to do all they can to get into the T position, which is the position which all tacticians would like to obtain. There are many differences of opinion now as to how you are going to work to get ahead of your adversary at right angles to his course; but I never found anybody who did not agree that if you can get into the T position that is the finest you can possibly take up in a naval action. You require to have a certain preponderance of force, and you must have some ships with a preponderance of speed. The main body keeps aflank of the enemy's line, while the best ships cut along and try to get across his line. If they can do that you get a raking fire, which is splendid so far as its elevation is concerned, because you can bring your full power to bear on the enemy's whole length of deck from ahead, while at the same time he is getting knocked about by the main body of the fleet abeam. That is an admitted fact in tactics. Those are all the remarks I have to make upon that point, because I do not want to take up your time. Lieutenant Dewar did not actually propose this movement, but I have thought a good deal about this particular tactic, and therefore I brought it into my remarks. I fully agree with him with regard to the lamentable deficiency there is in instruction in tactics. That has been the case ever since I have been in the Service. The matter is of very great and extreme importance, and I am very pleased to say that we have now got what a great many people in this Institution and elsewhere advocated for a number of years, namely, the establishment of a College. In my time there was no such thing as the war game; there was no instruction anywhere. We had to get all our instruction on the poop of the flag-ship, and that is the only place where any instruction was ever given so far as tactics are concerned. Systematic instruction has only been started lately, but, like a young boy, it is growing fast, and we hope that with suggestions such as we have had from the lecturer to-day it will grow very much faster. The interest taken in the subject in the highest quarters will very soon grow downwards into the lower quarters, and we shall find everybody taking an interest in the subject. Then, and not till then, we shall reach the acme of perfection. You want speed and gun power and a tactician, and you want to apply that speed and gun power when the moment comes when the country's honour may be entrusted to any one of the admirals who are so able to take care of it afloat. I end by moving a vote of thanks, which I am sure you will all accord most heartily, to the lecturer for the most able, though somewhat technical, lecture he has given us to-day. I am sure we shall go away with a great deal to think about, and I hope that the result of our deliberations will be for the welfare of our country.

Admiral The Hon. Sir EDMUND FREMANTLE:—Before we separate I should like to ask you to accord a hearty vote of thanks to the Chairman for presiding to-day, which I am sure you will be glad to do. I should like to add to what I have already said that a certain number of years ago I had the honour to win the Gold Medal of the United Service Institution—in the year of our Lord 1880—a long time ago. I then took as the motto of my Essay, *"Nil sine magno vita labore dedit mortalibus"*—"Nothing is given to mortals without a great deal of work." At that time nobody seemed to think this subject required any study at all. It was said by naval men: "All you have to do is to put your ship alongside the enemy—that is what Nelson said." That was a mistake, because it was not what Nelson said. What Nelson said was: "If you do not

understand this memorandum of mine, which is of a somewhat elaborate nature, no captain can go far wrong who places himself and his ship alongside the enemy." In my early days, when I first went to sea, and before I had read this memorandum, I always heard it said: "Nelson said all you have to do is to put your ship alongside the enemy," so that you need not bother yourself about manœuvres. An officer in a high position, when speaking the other day, spoke as if it was a very simple thing to put your ship alongside the enemy. Nelson did not tell us it was very easy, and other people in Nelson's time did not do it at all. I am sure you will all join with me in according a very hearty vote of thanks to the Chairman for his interesting speech on the extremely instructive lecture we have had.

DEFENCE OF HARBOURS BY FORTIFICATION.

By Brigadier-General R. F. JOHNSON, C.M.G., R.A.

Continued from December JOURNAL, p. 1685.

CHAPTER V.

THE ATTACK AND DEFENCE OF LAND FRONTS.

I.—*The Attack.*

THE variety of problems presented by the attack and defence of the land fronts of fortified harbours is greater than in the case of the sea defences, because in addition to the influence of the naval position on the amount of opportunity an assailant may have, political factors have to be taken into account, and the tactical conditions are always peculiar to the locality. It is therefore only possible to treat the subject on very broad lines, and to try and arrive at principles on which the arrangements can be based, though they must ever differ in detail.

It is only intended to consider attacks in the nature of a raid (*i.e.*, those for which the period of time available before interference by forces external to the garrison must be reckoned as strictly limited), because—

a. In all instances—at any rate, in modern days— where a fortified harbour has been besieged, other reasons than its naval value have been the principal cause of the undertaking.

b. If a harbour is of value otherwise than as a means of naval warfare, its defence belongs to the sphere of the coast, or territorial, defence forces.

c. If a Power is in a position to invade another's territory with a large force transported over-sea, the destruction of naval bases, or the capture of important harbours, cannot be for it an urgent matter.

d. Siege operations would only differ from those in the case of an inland fortress by reason of the difficulties connected with the transference of troops from point to point created, generally for the defence and often for the attack, by the harbour and its branches.

Of course, there are ports of naval importance which might be besieged without the assailant having command of the sea, but their safety is better secured by arrangements for counter-attacks, rendered possible by the defenders' command of the sea, than by the provision of elaborate fortification and large garrisons.

Normally a siege may be regarded as impossible before the question of naval supremacy has been settled; but while it is still in dispute the destruction of, or damage to, naval bases may very well offer chances of profit, and damage to the shipping in an important commercial port may have a valuable moral effect, while it may often be possible to do what is wanted with a raiding force sufficiently small for its loss not to be seriously felt.

As ships cannot count on silencing forts, it is certain that if it is intended to do anything more than to make a reconnaissance, an attempt will always be made to use a landed force; and there can be no doubt that an attack of small parties on the land side of the batteries would greatly assist a torpedo-boat raid.

Ships of any size will generally be able to spare small parties from their crews for landing, and provision should be made at all defended harbours against such enterprises. If, too, a squadron intended to attack a naval base has a chance of reaching its destination, there will be no reason why it should not be accompanied by sufficient transports to carry a couple of thousand troops or so in any case, or more when secrecy during the preparations is not imperative. Therefore naval bases should be prepared to resist the attacks of troops, but the defence of commercial ports against anything larger than a boat attack must, as a rule, be left to the territorial forces in their neighbourhood, because the size of their towns is too large for an ordinary garrison.

To what extent any naval base should be prepared against the larger class of raids depends on the probable opportunity possible enemies may have for making them, and on the period of resistance required by the probable strategical conditions.

If the expeditionary force has to be transported by sea, and will be dependent on sea communications during the operations, the feasibility of the enterprise rests entirely on the naval situation, and a superior Navy should be able to limit the time factor of opportunity with a fair amount of certainty.

If, however, the assailants can approach without crossing the sea, the naval position only affects the matter if the garrison depends on sea communications for relief.

Intermediate cases are also conceivable where the attacking force would have to cross the sea, but would possibly be independent of sea communications after arrival. The probability of any fortress being subject to such conditions must be judged by politicians and diplomatists.

In all cases where the sea has to be crossed, if the defence has superior naval strength, the size of the expedition may be expected to be not very great because of the necessity of concealing the preparations, which will limit the number of transports; but in estimating the strength of the attack a very considerable margin must be allowed, because, although the difficulty of concealment might preclude the employment of 20,000 or 30,000 troops, it would not vary much in the cases of 5,000 and 10,000.

The strength of a raiding force is affected, too, by the rapidity with which the enterprise must be completed, as a large force takes longer to disembark and move than a small one. The factor of time will also affect its composition so far that it may be assumed that the attack will usually have no guns heavier than field pieces, and that, even if the time is to be measured by days rather than hours, the larger guns or howitzers will not be numerous or of more than medium calibre.

The existence and proximity of territorial defence forces affect the probability of a raid being made, and it is clear that home ports must always be less liable to attacks in strength than distant ones, although the extra transport and the accidents of the sea have to be discounted by the assailant in the case of the latter.

The distance of suitable landing places is an important point, especially in connection with raids of the larger sort, and there are many others that have to be considered by the authorities who have to decide on the reasonableness of military demands; but of these only one need be mentioned, and that only because it should not be lost sight of by an insular Power with small land forces. This is the value to a possible enemy of the troops employed in a raid of a strength sufficient to give a fair chance of effecting its purpose. An enemy with an inferior Navy but with a very numerically superior Army, might risk the entire loss of a considerable body of troops for the purpose of redressing the balance of naval force. The less the disparity in ships the more likely the use of surplus troops in such enterprises in the early stages of a war while the command of the sea is still disputed.

II.—*The Defence.*

Here the conditions appertaining to defence against a raid by a considerable force will be dealt with, as the case of smaller raids only require modifications in the application of principles.

The first principle to be observed in planning the defence of a harbour on its land fronts is to make the protection of the harbour (or, rather, of what it contains in the way of ships, dockyards, and stores) the sole object.

The Royal Commission of 1859, in making their recommendations as to the fortification of Portsmouth and Plymouth, gave indications of an idea that these places when made into strongholds might assist in coast defence by acting as *points d'appui*, whence an invader's flank might be threatened as he advanced inland. The proper place, however, for a force employed in the defence of territory is one centrally situated as regards the lines of advance from the frontier, and certainly not a flank position on the frontier itself. The fact that the frontier is the sea coast only emphasises the necessity of a central somewhat retired situation, because the point of invasion is much more doubtful and can be much more rapidly changed than in the case of a land frontier. Moreover, it is

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quite possible for the usefulness of a fortified harbour as a means of naval warfare to be impaired through such a mixing of harbour and coast defence.

The second principle is that works with their bare garrisons are ineffective. They must be regarded simply as *points d'appui* to the action of a mobile reserve. A garrison formed of troops properly trained and equipped to ensure its mobility is, without fortification, worth double its strength of immobile troops confined to forts, however strongly constructed and armed the forts may be.

Sir John Burgoyne told the Royal Commission of 1859:—"If you trusted to works and garrisons only, and you had no sorties, which there would not be if you had not a very large force, then I think they might penetrate almost anywhere, in spite of your works."[1]

The third principle is that the extent of the front held must be in due proportion to the strength of the garrison, regard being paid to tactical and other conditions.

Among the tactical conditions are the nature of the ground about the line selected for the main positions of defence, and the nature of the internal communications. If the attack is confined to certain well-defined lines of advance, a longer front —*i.e.*, a larger perimeter—can usually be held than if the country is open; and if the internal communications are interrupted by the harbour and its creeks, so as to impede the transference of the mobile reserve and necessitate the defence of different sections of the perimeter being more or less separate, a shorter line will have to be adopted than would be otherwise possible. Of course, the strength of attack considered probable affects the matter to a certain degree, but the estimates cannot be based on any certain *data*, and are practically of little use.

The sea defences, dockyards, stores, etc., always — and vulnerable points on the neighbouring coast sometimes—require guards, which must be deducted from the garrison before the extent of perimeter is decided, and due allowance must also be made for the quality of the troops and the characteristics of the population.

The last-named factor is very likely not to receive the attention it deserves, because there is a tendency to assume that a population, quiet and orderly in peace, will continue so in war, though there have been many examples to the contrary. The civil police will nearly always require some assistance from the troops in enforcing the regulations necessitated by war; and if the population be alien, the garrison must hold in reserve sufficient strength to keep it in subjection, not only before but also during an attack.

It is for the Government to decide what troops can and shall be assigned to the defence of any harbour. For the sea defences certain standards can be laid down, as long as their application is allowed to be elastic; but there is no possible

[1] *Vide* answer 606.

standard for the strength of the garrison of land fronts, and the importance of a place has little to do with it.

The defence of a harbour cannot be considered complete unless the garrison can deny to the assailant all positions from which he can bombard the object defended; but for any serious damage to be done to ships, dockyards, etc., by the guns of a raiding force a long time would be required. Therefore, even an imperfect defence against artillery will in most cases be sufficient, provided that against infantry can be assured for the period during which the fortress is intended to stand by itself. Fortress commanders should bear in mind that the loss of a harbour, or the necessity of sending relief sooner than expected, may disarrange all the strategical plans of their Navy, and consequently it is a fatal mistake to attempt more than the garrison is certain to perform. The defence should be given as offensive a character as possible, but that is not to be done by occupying advanced positions which cannot be held.

The only type of permanent fort which seems to fulfil modern requirements may be described as a mass of concrete containing bomb-proof chambers and carrying armoured cupolas for its guns. Any other form is too vulnerable to the fire of modern artillery.

This makes permanent forts more expensive than ever, and there are other objections as well. They can seldom be concealed, and so are prominent objects marking the positions of defence. When once built they have to be occupied, and so may actually impair the power of resistance by preventing modifications in the perimeter to meet alterations in the garrison. They should therefore be avoided, but the following seem to be special cases in which their use may be justifiable:—

1. Where ships can cover the assailants' advance from the landing place, when a work constructed and armed to resist the attack of both ships and troops is wanted. The case is rare but not unknown.
2. Where there is a position incapable for various reasons of being included in the main line of de-defence, but such as will obviously be occupied by the attack with the certainty of really appreciable damage to the objects defended.
3. Where the existence of a fort may block approach by a causeway or other defile.
4. Where the period of resistance demanded is exceptionally long, and the extent of attackable front is large, in which case a fort placed well forward may break up the attack and favour counter-attack.

This opinion, as to the limited use of permanent fortification is based solely on the nature of the attack considered probable, and has not been influenced by the resistance of improvised works at Sebastopol and Port Arthur. In both these cases large portions were constructed on a scale quite impossible with the materials usually available; in the former, Todleben

regretted their improvised nature, and in the latter their resistance was inferior to that of the permanent forts. If a place is to be attacked and defended by armies, or to stand a siege, common-sense shows that permanent fortification must be the stronger form, notwithstanding the excellent resistance developed at Plevna or the effect of the Lines of Torres Vedras.

While permanent fortification in the shape of forts is to be avoided, the preparations for the defence should on no account be postponed until an attack is imminent.

The entrenchments, if the ground is not of such a nature as to prevent their speedy execution, need not be constructed and maintained, but complete plans for them should be prepared, and all materials for head cover and bomb-proofs, tools, uprights for wire entanglements, etc., ought to be kept in the fortress, for local supplies will seldom be found sufficient or suitable. Where the land to be occupied is private property, difficulties will be met in giving opportunities to the troops assigned to the garrison to even partially practise the entrenchment of the positions; but with care no damage need be done that cannot be met by moderate compensation, and whatever the expense may be, it cannot with propriety be avoided, because untested plans are never reliable.

Although the preparation of the entrenchments need only be of the above sketched character, that of the necessary communications should be much more complete, and most of them should be executed and permanently maintained. A very small portion of them can be improvised, and a well-planned system in good order will so greatly increase the value of any strength of garrison that neither expense nor any other consideration can be an excuse for neglecting to secure the advantages it confers. Among the most important items are firm roads for the transport of guns; screens of hedges, banks, or trees, to conceal movements in rear of the line; the main lines of telephone wires; and, where troops may have to be moved across the harbour or its branches, piers or landing stages.

However improvised may be the character of the defences, their execution will generally have to be commenced before a state of war actually exists, and although demolitions of buildings or fences, and indeed any interference with private rights or amenities should be avoided as far as possible, they never can be so entirely. If a Government has no statutory power in the matter there should be a definite understanding between the fortress commander and the higher authorities as to what clearances, etc., are necessary, and the former should be relieved of all responsibility for making them after he has received orders to prepare for war. The fact that General Ulrich, the commandant of Strassburg in 1870, could not fell a tree to clear the field of fire until the day after the battle of Wörth, shows that there is good ground for insisting on this point, and his was by no means an isolated case.

In the exceptional cases where permanent forts may be employed, some of their guns should be more powerful than

any the assailant is likely to bring, and a calibre of 6 inches is desirable; but their main armament had better be Q.F. guns of a lighter nature, as a raiding force is not unlikely to attempt an assault, and preference must be given to 4- or 5-inch calibres over smaller ones on account of their greater shell power.

Guns of position, firing shells weighing between 30 and 60 pounds and mounted so as to be movable, are the most suitable for the main line of defence to meet the guns of the attack; but the efficiency of the defence depends in the end on the mobility of the reserves of the garrison and that to a great extent on the mobility of their artillery. Therefore, an equipment of mobile field guns, provided with efficient transport, is essential to every defended harbour which is liable to a land attack of larger dimensions than a hasty raid made by ships' landing parties.

At some places howitzers may be desirable; at others the nature of the country or the means of transport available may create a need for a proportion of mountain guns. At one fortress a few field guns will suffice; at another all natures may be wanted.

Rifle calibre machine guns can scarcely be given in too great a number, provided they can be efficiently manned. In addition to their acknowledged value in the defence of positions, they enable the infantry to support the artillery against attack on the sea fronts, for by their fire on the decks they may frustrate attempts to destroy a boom, interfere with the navigation of blocking vessels and torpedo craft, or prevent the launching of torpedoes against ships or dock gates if the harbour is penetrated.

The defence of positions, either in the open field or around a harbour, cannot be reduced to a precise art, but there is one ruling principle to be observed in fortification: the object of the works is to enable the arms of the defender to be used to the best advantage.

This, of course, should be obvious, but it cannot be repeated too often.

General Brialmont has told us that the real value of artillery to the defence was not recognised by engineers until after the siege of Sebastopol, and has pointed out that even Montalembert (whose own precept was: "It is necessary to economise as regards the works of defence, which constitute the passive power of fortresses, in order to augment the artillery, which constitutes their active power") so sited the numerous guns employed in his designs as to prevent their action at the longer ranges, made possible by the improvements in artillery of Gribeauval.

Perhaps the highest praise which can be given to any works of defence is that contained in the description of the Lines of Torres Vedras by Captain Thuillier, R.E.: "They are the embodiment of the fortification of the soldier as opposed to that of the draughtsman. . . ."[1]

[1] "The Principles of Land Defence," p. 103.

(To be continued.)

A FORGOTTEN HERO

By Colonel G. J. HARCOURT (late 102nd Foot).

THE British Empire has been so long accustomed to consider itself as the only European nation in India that the predominance of the French in that country in the middle of the eighteenth century, and England's long struggle for supremacy is unknown to the great majority, even of the educated public. Nor is it realised that but for that struggle, carried out to a successful issue by the valour of her sons, France, and not Britain, would at this moment be the ruler in that great Dependency.

The historian, Orme, has chronicled the deeds of many gallant heroes who took part in our early contests with the French in the East, prior to the days of "Plassey," and the subsequent exploits of Clive, Cornwallis, Warren Hastings, and Wellesley, against native potentates; but Orme has never been read except by an insignificant minority, and without some personal knowledge of India he cannot be read by any to much advantage.

From the year 1644 to 1746 the English East India Company possessed a few factories on both the Coromandel and Malabar coasts, guarded by a few European troops. Bengal did not exist as a Presidency until 1707, and Bombay, with a small garrison, was subordinate to Madras, which then, and for long subsequently was the chief seat of the Indian Government. The troops in the premier Presidency from 1644 consisted of seven independent companies of seventy English soldiers each, commanded by ensigns, and were employed to garrison the various factories in Southern India and in Bantam, Java, Priamam, and Formosa.

The French East India Company had possessed Pondicherry by a grant from the Nawab of the Carnatic since the year 1674; they wielded immense resources, and their troops were more numerous and better equipped than the English, when, in 1746, their Governor-General, the Marquis Dupleix, the ablest statesman France ever sent to India, resolved to destroy the English and drive them out of the country.

With this object, he gave directions to General La-Bourdonnais, a man of great energy and ability, and the founder of Mauritius, to proceed with a powerful fleet and army and lay siege to and capture Fort St. George, the chief town and fortress of the English on the Coromandel coast, and the residence of the British Governor. La-Bourdonnais appeared off Madras in September, 1746; no resistance was possible, and Fort St. George fell after two days' bombardment.

The commander of the Fort St. George garrison had died in May, 1743, and it was to succeed him that the Court of Directors, after much delay, fixed on a remarkable man, and one whose subsequent exploits in India were of such a nature as to draw from the British Empire a debt of the deepest gratitude. Their choice fell on Captain Stringer Lawrence, of His Majesty's 14th Regiment of Foot.

Lawrence was born on the 24th February, 1698. In December, 1727, at the age of 29, he obtained a commission as ensign in the 14th Foot, and saw much service in Spain and Flanders, as well as during the Highland rebellion in 1745, when he acted as adjutant to Lord Tyrawley.

According to the record of the Directors' Proceedings for 17th December, 1746, "It was resolved that the garrison of Fort St. George be strengthened with a number of recruits, sergeants and ensigns, and that an able officer be sent from hence as major thereof; and Captain Lawrence, being recommended as a person qualified for the post, resolved by the ballot that the said Captain Lawrence be appointed major of the garrison with a salary of £250 per annum."

On the 18th February following, when he was forty-nine years of age, Lawrence took the usual oath and sailed in the *Winchelsea*, one hundred and fifty men (recruits) embarking at the same time.

Lawrence's voyage lasted nearly eleven months, and as on arrival off the coast the French flag was seen flying from the ramparts of Fort St. George, the vessel headed for Fort St. David, lower down and south of Pondicherry, where the English maintained a small garrison. Very little was then wanting to deprive Britain of her last foothold in Southern India. Two attacks since the fall of Madras had been foiled rather than defeated. Lawrence's first care was to form a camp outside the walls, and the presence of the English fleet on the coast prevented any French movement against the place for a time. He next proceeded to reorganise the companies of English soldiers and to introduce a system of military law. The reorganised companies were seven in number; these he formed into a regiment, distinguished for a century afterwards as the Madras European Regiment, of which he became the first colonel. This regiment is now known as the 1st Battalion of the Royal Dublin Fusiliers, of which H.R.H. the Duke of Connaught is Colonel-in-Chief.

Six months after Lawrence's arrival Dupleix took advantage of the absence of the British squadron to make another attempt against Cuddalore, a fortress about a mile inland from Fort St. David. By a sudden march a force of eight hundred Frenchmen and one thousand sepoys from Pondicherry appeared within three miles of Cuddalore on the morning of 17th June, 1748. Lawrence ostentatiously withdrew the guns and garrison to Fort St. David, giving out that he did not consider Cuddalore tenable. Directly night fell he marched back the garrison and guns.

At midnight the French advanced, and were received with such a fire of grape and musketry that they flung down their arms and fled back to Pondicherry.

Four months after Lawrence sailed from England, the news of the loss of Madras reached the Court of Directors in London, and they were at once roused to action; they applied to the Crown for assistance, which met with a ready response. An expedition against Pondicherry was fitted out under Admiral Boscawen and sailed from England in November, 1747.

For the purposes of the expedition twelve independent companies, each of one hundred men, were formed by drafts from different regiments, a force of artillery was added, the whole consisting of about 1,400 men. On the 29th July, 1748, the squadron arrived off Fort St. David, the troops were landed, and on 8th August began their march north to Pondicherry. The force, all told, including Lawrence's regiment, with Marines, sailors, and a Dutch contingent from Negapatam, amounted to 3,700 Europeans, rank and file. The whole of the operations were in Boscawen's hands, and the subsequent miscarriage of affairs was ascribed to his ignorance of land warfare. Lawrence's authority only extended to the Company's troops, which formed a fifth of the force. After losing 150 men killed and wounded, at a small outpost, where Lawrence himself was made a prisoner, Boscawen broke ground before Pondicherry; blunder was heaped upon blunder, till at the end of a month the siege was abandoned with the loss of one thousand and sixty-five soldier and sailors, and an enormous quantity of ammunition. In November news came of the cessation of arms in Europe, and Lawrence was released and permitted to return to Fort St. David pending ratification of the treaty of Aix-la-Chapelle, which restored Madras to the English.

Disgusted with the way matters were being conducted in India, and, completely broken down in health, Lawrence on the 25th September, 1751, resigned the Company's service and sailed for England. But the Directors, with a sagacity they did not always show, sent him back to India before he had been two months at home, with the appointment of Commander-in-Chief of all the Company's military forces in the East Indies, and a salary of £750 a year. The most stirring part of Lawrence's career was about to commence.

On the 14th March, 1752, Lawrence again landed in Madras, and at once took command of the army about to march for the relief of Trichinopoly, where a small portion of the European regiment, under Captains De Gingens and Dalton, aiding Mahomed Ali, the English claimant to the Nawabship of the Carnatic, had been besieged for seven months by a French force under General Law, and a large native force under Chunda Sahib, the French claimant to the Nawabship. On the 26th March, Lawrence arrived within twenty miles of Trichinopoly, when he was attacked by the enemy from a battery on the line of march, losing 20 English soldiers, killed, and experiencing

much confusion amongst his baggage before he could extricate himself. Continuing his march without further interruption, he halted that night about ten miles from the fortress.

The next morning, having resumed his march, and having been joined by 100 men of his regiment, from the garrison, and fifty dragoons, he pushed forward Clive (afterwards Lord Clive of Plassey), with a small detachment and some guns, to occupy a building which Law had neglected to secure, while he, himself, moved up, in order, to his support. A fierce cannonade ensued from nine guns on the English side against twenty-two on the French. In half-an-hour the French wavered and gave ground, withdrawing their guns, when Lawrence, with a loss of twenty-one of his men, continued his march and entered Trichinopoly the same evening.

The French Army and their allies occupied the Island of Seringham, formed by two branches of the Cauvery, north of Trichinopoly, and the position was an extremely strong one. Lawrence, therefore, determined to cut off their communications with Pondicherry, and for this purpose he divided his forces, and sent Clive, in command, to the north of the river, with four hundred of the European regiment, seven hundred sepoys, four thousand native horse, and eight guns, with directions to occupy a place called Samiaveram, where they entrenched themselves. Lawrence then crossed over to the island with his troops, ordered Captain Dalton, with 150 English, 500 sepoys, 500 Mahratta Horse, and four guns, to cross the river, and directed Clive to attack Pitchanda, the only post north of the Cauvery retained by General Law. Clive's guns first broke up Law's camp on the island, forcing him and his allies to take refuge in a temple, and Pitchanda fell after two days' bombardment. The investment of the island was now complete, and on the 3rd June, 1752, General Law surrendered with 35 officers, 785 French soldiers, 2,000 sepoys, and 45 pieces of artillery. Chunda Sahib, the French claimant, was taken prisoner by the Tanjore General, and put to death the same day. On the previous 27th May, Clive had encountered the French General d'Auteuil at a place called Volcondah, which he carried by assault, when the General and the whole French force, consisting of 100 French soldiers, 400 sepoys, 340 horse, 3 guns, and a great quantity of stores (including 800 barrels of powder and 3,000 muskets), surrendered.

Lawrence having left a sufficient garrison in Trichinopoly, proceeded to Fort St. George; but he was soon again in the field. In August, 1752, Dupleix sent General De Kerjean to blockade Fort St. David. His force amounted to 450 French European Infantry, 1,500 sepoys, 14 guns, and 500 native horse. Lawrence at once embarked for Fort St. David. His force consisted of 400 men of his regiment, 1,700 sepoys, and 9 field guns, together with 3,000 worthless rabble representing the Nawab's troops. General De Kerjean, finding he was about to be attacked, broke up his camp and retreated to Bahoor, followed by Law-

rence. The next day De Kerjean moved back within the boundary hedge marking the limits of Pondicherry. According to the curious ethics of the time, France and England being nominally at peace, Lawrence's instructions forbade his violating French territory; so he contented himself with driving in the French outposts, outside the boundary edge, in the hope of bringing on a general action. Seeing that De Kerjean had no intention of leaving his position, he formed the project of luring him out of it. Affecting an unwillingness to engage, he fell back precipitately to Bahoor. De Kerjean, against his better judgment, allowed himself to be coerced by Dupleix, under threats of supercession, into following Lawrence, and encamped two miles from Bahoor.

Before daylight, on the 26th August, 1752, Lawrence moved out to attack. In every action at that time, the decisive blows were struck by the European troops, and it was essential to ascertain where the French battalion was posted, before the English battalion was too deeply engaged. At the first challenge, the English Sepoys opened fire, but the European regiment continued its advance with shouldered arms. As daylight appeared, the French battalion (known as "The Regiment of India") was discovered drawn up, with their right resting on a high bank, and their left covered by a small piece of water. The Madras European regiment formed up opposite to them, and advanced under a heavy fire of cannon and small arms. The records of war show that, under such circumstances, one line or the other usually gives way before actual contact; but at Bahoor, an incident rare in war occurred. The French stood the shock, and the two lines crossed bayonets without flinching. A few minutes of hand to hand fighting ensued, and then the English Grenadier Company and the two platoons next to them broke through the French centre. The whole French line gave way, and fled in confusion. General De Kerjean, with 15 officers and 100 Frenchmen, were made prisoners, a greater number were killed (upwards of 100 by the bayonet), while eight guns, with all the French ammunition and stores, were captured. Of the Madras European Regiment, 4 officers and 78 men were killed and wounded, mostly by the bayonet, so close and determined was the fighting.

In spite of his victory Lawrence was, for a time, reduced to inaction by the doubtful attitude of the Mysore Durbar and the Mahrattas, under the influence of Dupleix's intrigues. After much marching and some fighting, sickness amongst his troops forced him to return to Cuddalore.

In January, 1753, Lawrence was again in the field, engaged in harassing operations near Cuddalore against the French under General Maissin, owing to Dupleix's design to detain Lawrence and the English force on the coast, while his schemes were working at Trichinopoly. Unable to bring matters to a decisive issue, Lawrence was relieved from his dilemma by

urgent news from Trichinopoly, which caused him to transfer his operations to that neighbourhood.

Mahommed Ali's affairs had been going badly from the time of Law's surrender, his allies of Tanjore and Mysore had deserted him; he was without money or supplies, and found his only support in Captain Dalton, who had been left in Trichinopoly with 200 men of the Madras Europeans and 1,500 Sepoys after Law's surrender. The Mysoreans now began to intercept the entry of provisions into Trichinopoly, and open hostilities were inevitable. The Mysore army was encamped on the Island of Seringham, the scene of Law's surrender. Dalton resolved to attack them. At 10 o'clock at night on the 23rd December, 1752, he crossed the river and fell on the Mysore Camp. The attack was completely successful, and he regained the city after killing a great number of the enemy, with a loss to himself of only 20 killed and wounded; but on the following day, when attempting to drive the enemy off the island altogether, a regrettable incident occurred, owing to an officer leaving the force to communicate with Dalton, the Mahratta horsemen dashed in, and the English lost 2 officers, 70 English soldiers, and 300 of the best Sepoys, all killed; Dalton's force was thus seriously crippled.

From this date Trichinopoly was closely invested; the Mysore General, with 8,000 men, took up a position at the Fakir's Tope, south of the city and fortress, and Dalton was forced to send an express to Lawrence, asking for assistance. The intelligence of Trichinopoly's straitened circumstances reached Lawrence at Trivadi, near Cuddalore. Leaving 650 men at Trivadi, 150 of whom were English, he, without orders from the Government, marched at six hours' notice to Fort St. David to collect supplies. Marching next day he entered Trichinopoly, without fighting, on the 6th May, 1753; his whole force, including the original garrison, consisting only of 500 of the European Regiment, 2,000 Sepoys, and 3,000 of the Nawab's Horse. His artillery consisted of ten field pieces, and one of the eighteen pounders.

Directly Lawrence's withdrawal from Trivadi was known to Dupleix, he despatched General Astruc, with 200 Frenchmen, 500 Sepoys, and 4 guns, to Trichinopoly. All his plans depended on gaining possession of that fortress. Astruc was a General of considerable ability, and with so great a superiority in numbers, his success seemed assured; moreover, he shortly was reinforced by Dupleix, with 300 more Frenchmen and 1,000 Sepoys. On receipt of these reinforcements he quitted Seringham and encamped on the plain to the west of the city, near the village of Weycondah. His force consisted of 450 Europeans, 1,500 well-trained Sepoys, 11,500 Mysore and Mahratta Horse, two companies of Topasses (half-castes), and 1,200 Sepoys in the Mysore service, and a badly-armed rabble of 15,000 footmen. Lawrence had at his disposal 500 men of his European regiment, 2,000 Sepoys, of whom 700 were de-

tached, engaged in collecting and sending in supplies, and 100 of the Nawab's Horse; his position was full of peril; the enemy's position and numbers rendered it impossible to attack them with any prospect of success. Astruc was evidently determined to run no risks, and Lawrence's surrender for want of supplies seemed inevitable.

Half a mile from Lawrence's camp, and nearly a mile from Astruc's, was the Golden Rock, where Lawrence maintained a guard of 200 Sepoys. On the 26th June, 1753, at daybreak, Astruc attacked this post with a mixed force of Europeans and Sepoys, and, in spite of a gallant resistance, overwhelmed it, killing or taking prisoners all the defenders, before assistance could reach them. The French battalion was then brought up behind the rock, the French guns were posted at the base, and opened fire; the whole Mysore army was drawn up some distance in the rear, while the Mahrattas dashed about in small detachments threatening the flanks and rear of the small English force. Lawrence's position was truly desperate: a number of his Sepoys were absent in the city, buying rice; 200 more had just been destroyed; so that, after providing for the safety of his camp, he could only muster 300 of the European regiment, 80 artillerymen, and 500 Sepoys. With this force he had advanced to within a short distance of the Golden Rock, before the outpost was overwhelmed. To retreat in face of the numerous horsemen, and pressed by Astruc's Frenchmen, meant probable destruction; yet to attack a strong position, held by such an overwhelming force, seemed nothing but sheer madness. Lawrence chose the heroic part; in a few words he explained the situation to those about him, his officers agreed in the wisdom of attacking, while the men expressed their delight at the opportunity of having "a knock at the Frenchmen," who had kept so long out of reach.

Ordering the Grenadier Company to assault the rock, Lawrence moved with the rest of his little force round the base of it, to attack the French battalion.

Seldom in war has such a sight been seen as this little band of British soldiers moving to the attack, surrounded by many thousands of enemies. Scrambling up the rock, with fixed bayonets, and without pulling a trigger, cheering as they moved, the unexpected assault of the Grenadiers, led by Captains Kirk and Kilpatrick, struck the French defenders with panic.

Not daring to stand the shock, they fled headlong down the reverse side. Meanwhile, Astruc, behind the rock, not seeing what was happening, had wheeled up his battalion to meet Lawrence, exposing its right flank to the fire of the English Grenadiers from the rock, which fire was increased by some Sepoys who had followed the Grenadiers. At this moment Lawrence drew up his men directly opposite the French front, at twenty yards distance. In spite of General Astruc's efforts, his men were struck with consternation at seeing themselves attacked by the foe that a few moments before had seemed in

their power. Smitten by musketry fire in front and flank, they fell into disorder, which a bayonet charge, preceded by a volley, converted into a panic, and they fled from the field, leaving three guns in Lawrence's hands. The French rallied on the Mysore army, and contented themselves with keeping up an ineffective cannonade. For three hours Lawrence remained at the foot of the rock in the expectation that they would renew the combat. Finding the French would not advance, he formed his little army into a hollow square, and with the captured guns and about seventy prisoners in the centre, deliberately marched back towards his camp. Hardly had he got clear of the rock, when the whole of the enemy's cavalry, upwards of 10,000 in number, charged furiously down; but the Madras European regiment and Sepoys stood firm; not a trigger was pulled. The square was halted, and the guns rapidly served, pouring in grape shot into the dense masses, till, after losing some 500 of their number, they broke up and forsook the field, leaving the little band of heroes to march unmolested back to camp, bearing the trophies of their victory. No finer feat of arms was ever performed.

The battles of Bahoor and the Golden Rock are only typical of many an encounter that took place against French armies in the neighbourhood of Trichinopoly until October, 1754, when news was received of a truce, preparation to a definite peace, between the French and English Companies, and of the recall of Dupleix. At the same time Lawrence received notice of the grant to him of a sword of honour worth £750 by the Court of Directors.

The services Lawrence rendered to his country between 1748 and 1754 cannot be over-estimated. In 1751 the French power in India was at its zenith. From the Nerbudda to Cape Comorin the whole country was under the French domination. Had Dupleix triumphed at Trichinopoly, the expulsion of the English from Madras and Fort St. David would have quickly followed. Lawrence's victories turned the scale, and brought about the withdrawal of Dupleix, in whom France lost the services of the ablest statesman she ever sent to India.

Towards the end of 1754 Lawrence received notice that the King (George II.) had bestowed on him the commission of a lieut.-colonel in the East Indies. When the news came in 1756 of the capture of Calcutta by Sooraj-ud-Dowla, and preparations for its recapture were made, ill-health prevented Lawrence from taking command, and Clive was selected, on his recommendation, for the post.

In April, 1757, France again declared war, and after further severe fighting round Trichinopoly, Lawrence found himself in Fort St. George, which on the 12th December, 1758, was besieged by General Lally and a powerful French army. Lawrence's garrison comprised 1,600 English soldiers, 64 Topasses, 89 Coffrees, and 2,220 Sepoys; 197 of the European infantry belonged to Colonel Draper's regiment, the 79th Foot, and

1,197 to the Madras European Regiment. There were also about 140 men of the Royal Artillery. The siege lasted until the 16th February, 1759, when Admiral Pocock's fleet sailed into the roadstead with reinforcements, which determined Lally to raise the siege. The English loss amounted to 33 officers, 559 Europeans and 346 Sepoys killed, wounded and prisoners. Thus came to an end the most notable siege that had yet occurred in India, and the last serious bid for an Eastern Empire by the French.

Lawrence's health had now completely broken down, and in April, 1759, he sailed for England with the intention of never returning to India. On his arrival in England, the Directors granted him an annuity of £500 a year. In September, 1760, the Directors voted statues to Lawrence, Clive, and Pocock, "that their eminent services to this Company may be ever held in remembrance."

Yielding to the solicitation of the Directors, Lawrence again returned to India, and on the 3rd October, 1761, took his seat in the Madras Council. He was again made Commander-in-Chief, and received from the King (George III.) the commission of major-general in the East Indies. His salary was fixed at £1,500 a year, and he was granted a personal staff of an aide-de-camp and a brigade-major, with seats on the Councils of Bengal and Bombay, as well as that of Madras. In April, 1766, he bade a final farewell to India. Mahomet-Ali-Khan, whose rule over the Carnatic had been secured by Lawrence's abilities, showed his gratitude by obtaining the Company's permission to grant him an annuity of £1,500.

Lawrence died in London on the 10th January, 1775, and his remains were conveyed to Dunchideock, near Exeter, where a handsome tomb was placed over his grave in the parish church, and a monument erected to his memory on Haldon Hill in the neighbourhood by his friend Sir Robert Palk, a former Governor of Madras.

On his death the Directors of the East India Company voted a sum of £700 for the erection of a monument to his memory in Westminster Abbey, in testimony of their gratitude for his eminent services. It bears the following legend:—

Discipline Established.
Fortresses Protected.
Settlements Extended.
French
And Indian Armies
Defeated
And
Peace Concluded
In the Carnatic,

with a carved representation of the fortified rock of Trichinopoly and of the Golden Rock.

Since Lawrence's day, many illustrious names have been added to the roll of our Indian officers; none among them has a

better claim to be remembered than Stringer Lawrence, the "Father of the Indian Army."

If the best general is the one who makes the fewest mistakes, Lawrence's name should occupy a high position on the list of commanders. d'Auteuil, Law, De-Kerjean, Astruc, Menier, Maissin, Lally—every French leader who crossed swords with him—retired defeated from the combat, or had to yield himself a prisoner. In the field he exhibited all the qualities of a great commander, though opportunity to exercise them on a large scale was denied him. In front of the enemy his self-possession never deserted him at the most trying moments; never forcing a battle without necessity, he struck with all his force and with the greatest daring when the opportunity occurred. In council, his judgment was as sound as it was in the field. Again and again the Civil Government had to repent that they had followed their own devices and neglected Lawrence's suggestions. Among prominent men of the time he stands alone in having left no trace of personal ill-feeling attached to his name.

Yet by some inexplicable mischance, not a single one of his numerous victories gained over a powerful European foe—often with heavy odds against him (victories which won for Britain her Indian Empire)—is recorded in the Military Annals of the nation; nor are any of them emblazoned on the colours of the regiment he so often led to conquest; and to the reproach of England, Lawrence's name and deeds—than which there are no brighter in English history—have been suffered to lapse into oblivion and neglect. But if his country has forgotten him, his name will live for all time in the proud motto of his old regiment—

"Spectamur Agendo."

NOTE.—For full particulars of Lawrence's life, see Malleson's "The French in India," Biddulph's "Stringer Lawrence," J. Murray and Fortescue's "History of the British Army."

THE ART OF COMMAND.

By Colonel VON SPOHN.

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"IS command an art?" will perhaps be asked by some who feel that nothing can be easier than to give orders. Anyone, however, who thinks so, ignores the fact that the only man capable of command is the man who has learnt to obey, and that an order is only justified if, under the actual circumstances of the case, it was absolutely necessary. Even then, it can only be approved if it be unobjectionable both in matter and manner.

Every order places the subordinate to whom it is given in a position of constraint, to which he willingly submits without any question if he recognises the necessity for it; in such a case obedience is not a servile submission, but the free gift of a free man; but he complies with an order unwillingly if it is dictated merely by the pleasure of giving orders, or by the desire to magnify one's own importance.

Fondness for domineering leads to tyranny and incites insubordination; it does no good but compromises discipline. We can see this in thousands of cases in the army, where there are superior officers who compel the willing obedience even of insubordinate men, while there are others to be found who make even the best behaved men refractory.

Only the man who himself knows how to obey, who has learnt from personal experience how grievous an inopportune or superfluous order can be, and how inexpressibly hard it is, in such a case, to resist the impulse to revolt, only such a man will avoid blunders when he is himself in a position of command.

We soldiers should always keep this fact before our eyes; we want in the army a cheery and willing, not a slavish servile obedience. It is the first alone which conduces to happiness in the service, ensures a firm unshaken discipline, and inspires men to heroic deeds in action when bullets are whistling around them It is the first kind of obedience alone, which acts educationally and forms the character. The second kind only drives men, reduced to slavery (even if, from fear of punishment, they crush their feeling of defiance during the time of their service with the colours), to join the ranks of the Social Democrats, who are ever ready to receive them with open arms.

For this reason superiors who do not know how to command are a grave danger to the army and, ultimately, even to the State.

But this is not all. Another serious drawback involved in a mania for giving orders (whether it arises from a spirit of domineering, or is only a result of that anxious care which conceives that nothing goes on without an order), is that all independence, all initiative, and all love of responsibility on the part of subordinates are killed. And yet—as para. 2 of the introduction to our German training manuals clearly says—modern fighting requires thoughtful leaders trained to be independent, and self-restrained men, capable, from devotion to their officers and to their country, of proving their firm will to conquer even when their leaders have fallen.

Such leaders and such men are not produced by orders, superfluous in themselves, and beside the mark; but we undoubtedly do get them if we give no more orders than are absolutely essential, and if we praise every independent action, even if it be not altogether apt or appropriate. In such a case what is wrong must be reproved, but not severely, not sharply, not in the form of censure, but only in the way of kindly instruction.

No man likes to be severely found fault with, but everybody is willing to accept instructions, and does better another time. The man who has cause to fear fault finding, forswears initiative, and says to himself: "If I am going to be blamed I had better keep in the background; very likely I shall not be noticed then."

With regard to the form of an order, it should be borne in mind that this is only a definite distinct order, as short as possible, in which not a needless word is said, and which cannot be misunderstood. Every superior who finds that he has been misunderstood should first look for the fault in himself; if, after careful consideration, he finds that it was not his own fault, then, and not till then, he may take his subordinates to task.

It would be a great blessing if all orders in action had to be given in writing as, apart from the fact that such orders would always be evidence on record, the superior issuing the order would be kept from blunders due to haste, while the recipient of an order can understand more clearly what he sees in black and white before him, than he can an order given verbally to him by an aide-de-camp or orderly, often enough in a great hurry. I remember an instance at an inspection years ago, when I was a subaltern, which illustrates what I have just said. At a brigade inspection an officer of considerable seniority had just given his first order for action, in the presence of the general officer commanding, and what happened? The general officer commanding said to him: "It is a pity, Herr . . . that you did not give that order in writing. If I were to repeat it to you now, word for word, you would think I was joking, and you would never admit that you had given the order in the style you did."

It is very human and natural; the superior knows well enough what he *wishes* to order, but what he actually *has*

ordered in the excitement of an engagement, is beyond his power to judge. In his mind there remains only what he wished done at that given moment, not the actual wording of the order, though the whole question depends upon the latter only.

Let us leave the battle-field for a moment, and glance at our ordinary everyday life. How many stupid stories are not told by every one of us about our servants, and how many mistakes and misunderstandings can we not remember? So much so that the officer's servant has become a typical figure on the stage. But are our men so stupid that they really make a muddle of every order given to them?

No, most certainly not; and if we went to the bottom of the misunderstandings and mistakes, and their origin, we should find often enough that it was our own fault.

When, for instance, a subaltern tells his newly-appointed soldier servant to "get these gloves cleaned" (I have done it myself), why should he be astonished if the man sends the gloves to the washerwoman? Or again, whose fault is it if the man, being ordered to "bring me a glass of beer," brings the wrong brand of beer, or gets it from A. instead of from B.?

Examples of this kind constantly occur every day, and the unlucky servant gets all the blame, because he went off on a false scent. Sometimes mistakes occur in social matters, and why? The unlucky servant, who has grown up amidst the most homely surroundings, and has never in his life spoken otherwise than according to his lights, has suddenly to execute commissions and deliver messages which are quite beyond his comprehension, with the inevitable result of mistakes and blunders of all kinds.

This brief digression is only intended to point out how difficult it is, even in everyday life, to give orders in such a way as to make it impossible to misunderstand them, so as to place the difficulties of orders in the field in the right light. In the one case orders are given quietly at one's ease, when there is nothing to distract one's attention, while in the field we have to deal with the excitement of the moment, which may, all too easily, lead to crude, ill-considered, and hasty orders.

If we clearly picture to ourselves the possible and sometimes very lamentable results of such orders on active service, we cannot fail to recognise the fact that the giving of orders is an art which can be learnt and practised, and the only man who will succeed in learning is one who is really in earnest about it, who observes and trains himself by strict and relentless hard work, and sets himself a high standard.

In the field, in the course of actual duty (which constantly demands special attention, and must be carried on in accordance with its own special character), there is no time to practise giving orders. Therefore, no one should neglect to set himself problems on a map at home, and to set down in writing the orders or arrangements which would be required on actual service. It is interesting to see how many corrections have to be made at

the moment, and how many have to be added later, if the problem and the orders have been laid aside for any length of time.

Another and better method of learning the art of command is found in war-games, tactical exercises, and staff rides, if the directing staff strictly insists that commanders of all grades shall give all their tactical orders, without exception, in the proper form and wording, and therefore not in the form of: "I should not move up X Battalion on the left flank," but, "Major O., deploy your battalion on the left of N Battalion, the regiment will attack." If time permits, all orders should be given in writing.

Now *how* must an order be worded, so as to be clear and understandable to subordinates, and incapable of being misunderstood? The German regulations give indications enough, and it is, therefore, for us to make them our own.

According to the German "Field Service Regulations," paras. 46—51, it is laid down (with regard to the issue of orders) that an order should contain all that the subordinate must know in order to be able to act on his own responsibility for the attainment of the object in view, and no more. Consequently the order must be brief, clear, and definite, and it must also be suited to the recipient's range of view. Orders, during the transmission of which the situation may become changed, or those which may have to be carried out under circumstances which cannot be foreseen, must abstain especially from details. "Instructions," then, take the place of "Orders." These must indicate the object in view, but must leave the method of attaining that object alone.

Anticipatory orders dealing with a time a long way ahead, and those which go into minute detail, can seldom be carried out in their entirety.

In conformity with these directions, we read in the German Infantry Training Regulations, para. 274: "as no fixed pattern or *normal form* of action can be given, orders for action must abstain from any set form. As a rule, it comes to the troops being first moved quickly in the required direction by word of mouth; more detailed directions follow later."

And again (para. 275): "The higher commanders should give only such orders as are unavoidable. They must abstain from any interference in matters of detail, and must leave the choice of means to their subordinates."

These are wise regulations, but are they taken to heart by all commanders and on all occasions? Does not a lack of faith in the capabilities of a subordinate, or a wish to see the order carried out exactly in the way conceived by himself, end in many a commander transgressing against this very definite and outspoken regulation?

Would that every one would lay his hand on his heart, and examine his conscience.

This much is certain, that we can only bring up and train subordinate leaders to have independence, initiative, and fondness of responsibility, if we do not crib, cabin, and confine them, but rather give them freedom of action, within their allotted sphere. Such freedom of action, if properly directed, will never degenerate into the licence which is condemned further on in para. 276 of the German Infantry Training Regulations. But to deprive the subordinate commander of the independence to which he is entitled, means robbing him of the pleasure of service and the pleasure of action, and, at the very least, diminishing his interest in his work, and with it the germ of all active endeavour.

We can see from all this that command is, in fact, an art—it implies, with regard to the contents of an order, the necessity for recognising and not overstepping the proper limitations; but, within those limits, the wording must be so precise and formal that the meaning shall be free from all doubt, and shall stand out so clearly and sharply defined, as to make any misunderstanding impossible.

Such demands can only be satisfied by a commander who has been accustomed in his youth to give correct and appropriate orders, and who has never ceased to practise himself in doing so. We must again not lose sight of the fact that the proper co-operation of companies in a battalion, or of battalions in a regiment, &c.; will be absolutely impossible unless the orders issued have been thoroughly thought out from beginning to end.

In peace time, it is just conceivable that an order issued may be altered or cancelled five minutes later, though even here the phrase "Order,—Counter-order,—Disorder," is too often justified; but in war it must be definitely accepted as a fact, that such supplementary orders are impossible.

The orders issued to subordinate commanders at the opening of an action must, therefore, be worded in such a way that they shall still be applicable—at all events, in their general sense—as the action progresses.

A few examples may perhaps explain and illustrate what I mean:—

Situation I.

A regiment advancing comes in touch with the enemy. What orders will the commander of the regiment give to the commander of the advanced guard?

The German Infantry Training Regulations say (para. 356-7): "It is the duty of the advanced guard to secure for the main body time and space to deploy for action; the regimental commander issues the necessary orders with that view to the commander of the advanced guard. Above all, the position to be taken up by the artillery must be covered. Important tactical points especially commanding heights, to the front and flank, must be rapidly occupied, if necessary, by force.

"The advanced guard should not hesitate to take up a wider front than its strength would justify for a serious action. The artillery coming up will soon lighten its task."

It is obvious from these regulations that the regimental commander, even if he wished to do so, is not in a position to give an order which includes all possible eventualities without thereby raising misunderstandings. He can only express his intention, and therefore issues the following order:—

"The advanced guard will fight a delaying action."

He leaves the methods of doing so to the commander of the advanced guard, who will find them enumerated in the regulations (paras. 417-420 in addition to those already referred to).

This order contains everything that has to be ordered, or that can be ordered, and makes the commander's intention quite clear. The enemy must be engaged in order to occupy his attention, but should not, under any circumstances, be induced to deliver an attack, as the commander of the forces still desires to have a free hand. The advanced guard therefore pushes forward near enough to the enemy to be able to open fire and to make the enemy think that he is threatened with an attack; but not, under any circumstances, so near that its commander loses his freedom of action or even runs the risk of being driven back by the enemy, if the latter is daring enough.

The order given in the form indicated above cannot be misunderstood, and leaves to the commander of the advanced guard full power of initiative, by indicating only the general lines of his action.

If the wording of the order had been: "The advanced guard will occupy height X and will from there engage the enemy," the commander of the force would have acted contrary to regulation, and what is the advanced guard commander to do, if "height X," which from the position of the commander of the force seemed to be at most some 1,000 yards distant from the enemy, turns out to be actually some 1,600 yards away, or, perhaps, within close range?

In the first alternative, the advanced guard would be unable to open fire without a culpable waste of ammunition, and, therefore, the order cannot be carried out; in the second alternative it would not be able to hold its ground under such close hostile fire for any length of time, and would either have to fall back, or else push forward to the attack, in other words, to certain destruction.

If the "height X" is too far off, this makes a delaying action impossible, and if it is too close to the hostile position, this deprives the commander of the force of all freedom of action; he will have to conform to the enemy's initiative.

So the advanced guard commander will be compelled to disobey, as he ought not, under any circumstances, to carry out the order in the form given to it.

Situation II.

The battery with the regiment is moving to a hill marked by a windmill, and the battalion at the head of the main body has received an order to furnish the escort to the artillery. What orders are given by the commander of the battalion?

"The 10th Company will form the escort to the battery that has moved on to the hill marked by the windmill."

An artillery escort should, as a rule, take post to the front and to a flank, usually to the outer flank, but it would be wrong for the battalion commander to fix its position, even if the character of the ground made it possible for him to do so. The company commander will find the right place, *i.e.*, one which will enable him to carry out the duty allotted to him.

Assuming that there is a plantation some 400 yards to the right and 300 yards to the front, which the battalion commander considers to be the right place for the escort, he might give the order thus:—

"The 10th Company will advance to the plantation lying to the right front of the windmill hill, and will act as escort to the battery."

But he would have overshot the mark, because in the first place the choice as to *how* to do it is the company commander's affair; and, moreover, what if the plantation is too thick for the company to set foot in it? And what if the artillery has not taken up the position indicated at all, but, for good and sufficient reasons, has gone further to the front, to the right, or to the left?

Situation III.

The commander of the regiment decides to attack, deploys the 2nd Battalion, but orders the 3rd Battalion to hold two companies in rear of the left flank at his own disposal. What order would the battalion commander give?

"The 11th and 12th Companies will remain in rear of the left flank at the disposal of the colonel commanding the regiment."

Any other order, such as, for instance, defining the place or prescribing any particular formation or interval between the companies, would be fundamentally wrong, because the hands of the company commander would be tied thereby.

What if the company suddenly came under artillery fire at the place named and has to suffer heavy loss? Though such loss might probably be avoided by a change of formation, or by moving a short way forward, or back, or to a flank, the company leader is tied by his orders and must disobey if he diverges from them.

Now it is obvious that in such circumstances no competent company commander will adhere to the letter of an order which brings death and destruction upon his company, and no superior

will blame such disobedience. On the contrary, in such a case it would only be the man who obeyed his orders who would be called to account. But why place the company commander in such a position? On active service, where bullets alone are enough to decide as to right and wrong, there can be no doubt in deciding a question of this kind, but how does it stand in peace manœuvres? If the company commander disobeys a definite order, let us say because he finds himself exposed to fire, or because some other considerations forced him to do so, and if his commanding officer does not recognise the necessity, or very possibly never even asks the reason, but is annoyed, what then?

Situation IV.

The attack is to be pressed, but the regiment has not yet succeeded in establishing its superiority of fire. The battalion commander therefore decides to deploy another company. What order will be give?

"The 11th Company will deploy to the left of the 10th Company."

It would be wrong to prescribe the sort and method of deployment, or the strength to be deployed. The captain of the company will know that. It would also be wrong to order the company to place itself immediately on the existing flank. Very possibly there may be a suitable fire-position, not too far off, which the captain has noticed. Should it be left unutilised? What a mistake it would be, for instance, if the regiment could work its way forward under the cover of fire from such a position, and that position was not made use of!

The captain of the company knows that the regiment is trying to establish its superiorty of fire; he will, therefore, be in no sort of doubt as to how many rifles to put into the firing line, or what position is best for the purpose.

Or again, the regiment is about to attack, but, before that, another company is required to be deployed. In this case the order must be supplemented by:—

"The regiment is about to attack."

If the addition to the order were worded otherwise, *e.g.*, "push the firing line forward," not only would it be trenching upon the company commander's province, but it would be an order which, under certain circumstances, it would be impossible to carry out.

For if, at the moment when the order was given it was possible to carry it out, then the captain of the company would certainly do so on his own account. On the other hand, any such advance can no longer be thought of, if the enemy heavily reinforces his firing line while the advance and deployment is being carried out. In that case the company can do nothing but lie down and wait until the desired superiority of fire has been regained.

Situation V.

The commander of the regiment finds that he is engaged with superior forces, and that his attack cannot succeed; he therefore decides to withdraw to another position and there await the attack of the enemy. In order to prevent the enemy from pressing his retirement too closely, the 12th Company of the regiment (still available) is to be made use of. What form would the order to the captain of that company take?

"The regiment is moving its left flank to X; you will cover the regiment's retirement."

Any addition, any detailed directions, would be an infringement of the company commander's rights. He must not be told "deploy your company on the ridge," or "occupy (such and such) a line or edge of a wood, &c.," as his freedom of action would thus be hampered, and he must comply with his orders, on pain of being disobedient, even though he might, from where he is, reach a very much more suitable position. But even assuming that the occupation of the line (or edge of wood, &c.) mentioned fits in with the view of the company commander, such an order cannot be justified, because, entirely apart from the fact that the choice of means must be left to the subordinate, the constantly changing conditions of an engagement soon make measures wrong which shortly before were correct enough.

Situation VI.

A regiment, in the course of its advance, has to pass a defile. The enemy is also advancing. The regiment, therefore, pushes the advanced guard battalion forward to cover the passage of the defile. What orders would be necessary?

"The advanced guard will cover the regiment's passage of the defile."

The commander of the advanced guard will, as a matter of course, select a suitable position far enough to the front and flanks of the defile to prevent the enemy from bringing fire to bear upon it. The order leaves him an entirely free hand, and allows him to turn in any direction he may deem expedient.

If, on the other hand, he was told how far he was to advance, or if he was ordered to ocupy a definite piece of ground, or even to adopt a certain formation or course of action, the regimental commander would have been wrong three times over: first, because such an order would prescribe the means by which the object in view was to be carried out; secondly, because the regimental commander (even if he were at the moment in a position to issue such an order) cannot foresee the subsequent course of events; and thirdly, because the battalion would be tied down to one prescribed position.

Assuming that a thoroughly suitable copse or plantation lies in front of the defile, it will be, without question, the first immediate objective of the commander of the advanced guard;

and it might therefore seem that there would be no harm by the regimental commander in pointing it out at once in his order. But it is not so. For instance, if the enemy comes up on a flank and opens fire upon the regiment as it debouches, the advanced guard will *ipso facto* be compelled to deploy against the hostile force in that direction, and we shall have another case of disobedience of orders being made compulsory owing to those orders encroaching upon the subordinate province.

The order, as drafted above, lays no constraint upon the commander of the advanced guard, but demands circumspect, intelligent, and correct action on his part, according to the circumstances of the case.

Situation VII.

Red is beaten, and in his retreat has once more deployed on the line of the plantation opposite the defile, apparently to delay the pursuing enemy (Blue). The possession of the plantation is of great importance to Blue for the passage of the defile. What order will the (Blue) regimental commander give to his leading battalion?

The order should on no account take the form of "You will attack the plantation."

Such an order would compel the battalion commander to attack, even if he sees that the enemy is on the point of retiring, and that the wood is only held in very small strength. The attack would compel Red to offer renewed resistance, and instead of merely occupying the wood after it has been evacuated, the battalion would have to take it at the expense of casualties. Under some circumstances it would lead to the enemy's reserves being deployed, and to an obstinate resistance being offered.

The essential point here is not to engage the enemy, but merely to occupy the wood, under cover of which the main body will be able to pass the defile. The order therefore should run:

"You will occupy the plantation."

In this case it is left open to the officer commanding the battalion to await the enemy's retirement and the evacuation of the wood, and then to follow immediately and without delay; or to take up a position threatening the enemy's line of retreat, so that he will be compelled to continue his retirement. At all events, the wording of the order leaves the choice of means to the battalion commander, and it is for him to choose the most suitable means, which *may*, but not necessarily *must*, be to attack.

Situation VIII.

A battalion comes upon a hostile position, prepared for defence, but cannot ascertain its extent and strength, nor the numbers and description of the force holding it. It is therefore

necessary to reconnoitre at once, so as to clear up the situation. What order should be given?

"The 10th Company will reconnoitre towards the enemy's position near Z."

The company commander advances with his company to some point which gives him the widest possible view, but still far enough away to prevent the enemy being able to interfere with him. The actual reconnaissance will be made by officers' patrols, or groups, or even by half-sections (according to circumstances), to which the company forms the necessary support. The reconnaissance itself will naturally embrace all important points, viz.: the description of the fortifications, position of obstacles, strength of fortifications, weak points, distribution of the enemy's troops, position of his reserves, etc.

It would be wrong for the battalion commander to attempt to lay down in his orders how far the company is to advance, for he cannot know whether the point he prescribes (which may seem, from his own position, to be correct and suitable) will actually enable the company to carry out the task assigned to it; nor can he tell whether the company will not have to fight to reach that point—a possibility which is to be avoided, at any rate, in the first instance.

Situation IX.

The regiment, with two battalions in front line and the third battalion still in rear, finds itself threatened on its left flank in the course of its attack. Order:—

"The 3rd Battalion will cover the regiment's left flank."

Any addition would be a mistake. For instance, if the regimental commander gave the order: "The 3rd Battalion will occupy Cherry Hill, and cover the regiment's left flank," it might very possibly be right enough for the moment, and might coincide with the views of the battalion commander.

But how will it be a little later on when, for instance, the regiment advances? There is no longer any object in occupying the height mentioned, as it no longer covers the flank. So a fresh order will have to be given. Whereas with the order in the form first suggested, the battalion would conform to the movements of the regiment without any further orders. It will be still worse if it is impossible to cover the left flank from Cherry Hill, for then we shall have two orders, impossible to reconcile, and cancelling each other. If the battalion commander remains on Cherry Hill he cannot carry out the second part of the order; and if he covers the flank he cannot occupy the hill, and cannot therefore carry out the first part of the order. And yet there is hardly an officer of any seniority who has not received such orders! We should be specially on our guard against making such mistakes.

Situation X.

The battalion is engaged on the defensive; the enemy's attack is being pressed, and the commanding officer finds himself obliged to employ the 10th Company till now held in reserve. How is his order worded?

"The 10th Company will endeavour to check the enemy's attack."

Here it is left to the company commander to deploy his company in such manner and place as he may deem to be the best for achieving his purpose. It is quite immaterial whether he prolongs the firing line, or whether he moves to a position from which he can bring a flanking fire to bear, as any position will be correct which enables him to carry out the order. The duty assigned to him might be achieved by a counter-attack if, for example, the ground should admit of an advance against the enemy's flank without too lengthy a turning movement, and if it appeared to be advisable. The captain of the company will only have to consider that attack is more costly than defence, and that he can only hope for success if the enemy has no reserves available, or if the counter-attack can be made so suddenly that the enemy will have no time to deploy what reserves he may have.

If the company commander remains on the defensive he must select his fire position not too far from the enemy, or else the latter, by a suitable employment of his reserve could (and would) continue his advance unchecked. But, on the other hand, the captain of the company must not push too far forward, because his own advance would give the enemy time for carrying out counter measures, and the company, isolated from the rest of the battalion, would be liable to be overwhelmed.

Situation XI.

The same situation as above, except that the enemy is threatening the left flank of the battalion with an enveloping movement. Order:—

"The 10th Company will prevent the enemy from delivering a flank attack."

Here the captain of the company is given a free hand. If the character of the ground calls for a counter-attack, he decides upon a preliminary surprise opening of fire. If he considers it to be more correct to remain on the defensive, he will select a position lying in rear and to a flank of the battalion's position, so as to compel the enemy either to make a wider turning movement, or to abandon his manœuvre altogether.

Situation XII.

The regiment is engaged with a hostile force, the superiority of which has only been ascertained in the course of the action, and wishes to shake off the enemy by the assistance of its battalion in reserve. What order does the regimental commander give?

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Situation XII.

The regiment is engaged with a hostile force, the superiority of which has only been ascertained in the course of the action, and wishes to shake off the enemy by the assistance of its battalion in reserve. What order does the regimental commander give?

"The 1st Battalion will cover the retirement of the regiment."

The battalion can now deliver a counter-attack, or threaten the enemy in flank, or adopt any other measures which appear right and suitable for attaining the object in view. It is given an entirely free hand.

If, however, the order had been worded: "You will attack the enemy on the right flank," the battalion would have to continue the attack, even if its commanding officer was convinced that the enemy was abandoning his own offensive movement, because the order, in its present form, does not show that the regimental commander's intention is to disengage himself from the enemy.

It is obvious that to continue an attack under such circumstances would be a mistake, as it would then become impossible to break off the action, while the commander of the regiment has lost his hold upon one of his battalions, and has thus split up his force.

These examples will suffice, I hope, to show what I wished to point out.

Even if we may confidently assume, as I have already said in one of the examples, that no competent officer will adhere to the letter of an order in action, but will pursue the object in view with a proper willingness to accept responsibility—still this fact does not absolve superiors from the duty of never ordering more than it is necessary or possible to order.

We have, thank God, no model, no normal form of action, and therefore no superior officer ought to fall into the mistake of wishing to direct the course of an engagement upon lines of his own choosing.

Troops once engaged are beyond the control of the higher commander, and interference on his part is therefore impossible on active service. But what applies to active service also hold good for peace time, unless we abandon the principle that nothing must be learnt on the parade ground that has to be unlearnt again on service.

We learn most from mistakes and misunderstandings, and it is therefore well to let them run their course. Untimely interference, repeated orders, and such like, produce, instead of the trustworthiness, independence, and initiative which should be our aim, a feeling of insecurity and uncertainty which destroys all willingness to accept responsibility.

This much is certain, that superior officers who give their subordinates—in action and everywhere else where it is possible to do so—the independence which is their due, and even demand such power of initiative from them, will never be left in the lurch. They will find their troops, down to the smallest detachment, always in the right place throughout the battle and after its conclusion.

THE VON LÖBELL ANNUAL REPORTS ON MILITARY MATTERS IN 1907.

Précis from the German by Lieut.-Colonel E. GUNTER, *p.s.c., late East Lancashire Regiment.*

Continued from JOURNAL for December, 1908, p. 1696.

PART II.

REPORTS ON THE SEPARATE BRANCHES OF MILITARY ART.
INFANTRY AND COMBINED TACTICS, 1907.

A.—POSITION OF INFANTRY TACTICS AT THE END OF THE YEAR UNDER REVIEW.

BY LIEUT.-COLONEL BALCK.

BY the end of 1907 the essential outcome of experience gained in South Africa and the Far East had been officially summarised in regulations issued.† War experiences demand careful sifting before they can be taken as types to be copied by us in our battle-training. It is easy to give examples from military history of all sorts of tactics. The Austrians deduced from their experiences in 1859 the necessity of cut and thrust tactics. In England, after the Boer War, they almost denied the possibility of attack. The dark cloud of dread of loss obscured the necessity of destroying the enemy. In the Far East the Russians gathered afresh the bitter experiences of Plevna. The Russo-Japanese War dispelled the fog which, since the Boer War, had obscured clear tactical views, especially in regard to the practicability of the attack. The two latest wars have only taught us what could be deduced from the Franco-German and Russo-Turkish Wars.

To lead in war means to "attack"; "attack" means carry forward the fire. The superior leading of the Germans and the passive action of the Turks had not, however, allowed these principles to assert themselves, as they did in the British and Japanese battles. Japan won her battles with her "Infantry Drill" copied exactly from the German one of 1889. The Japanese and German Training Manuals required, therefore, only slight amendments to bring them up to modern requirements. The Austrian Drill Book of 1903, which is in principle similar to the German, is also up-to-date. In these regulations

†See Appendix to "Infantry Training" (German), August, 1907, critical summary of the attack training in the Austrian, German, French, English, and Italian Armies.

for battle-training the importance of drill as a means of furthering the soldiers' training is, under German influence, duly appreciated, and the advantages of the "encounter battle" with ingrained habits of fully utilising fire-power inculcated. On the other hand, the English Infantry Training of 1905, warned by the consequences of hurried attacks in the Boer War, bears the unmistakeable impress of caution, while the French Regulations of 1904 have arrived at a pronounced predilection for the bayonet. In contrast to the German Regulations, they only provide for the attack of an enemy in position. The Russian Training Manuals of 1907, regarding which no final judgment can yet be formed, consider more than formerly the effect of their own and their opponent's fire. In Italy progress has come to a standstill. In Belgium new regulations were issued in 1907; while those of Spain and Switzerland are in hand.

War experience shews how small is the fire-effect against well covered troops, while men standing suffer more than ever. This leads naturally to the use of rapid fire in those fleeting moments when men are so exposed. Volleys were found impracticable under heavy fire, and therewith was lost the great advantage of keeping the men well in hand. Volleys were then replaced (in France and Russia) by a certain *named* number of rounds. In this way the "*Rafale*" (rapid fire) has been developed in France. In the case of a surprise, in order to keep the men in hand, in case of a cavalry counter-attack, before using independent fire, volleys now again are practised in Germany and Austria, which formerly used independent fire throughout. The French still fire volleys. In England, Italy, and Switzerland they have been abolished. At the commencement of the Boer War all British fire-tactics were based on volley-firing.†

The typical attack system of the Germans, Austrians, and Japanese treats alike the "encounter-battle," the attack on an extended force, or on a fortified position. The French system, which only provides for the attack on an enemy in position, relies entirely on moral effect, making no mention of preponderance of fire or of enveloping the foe. In England a systematic advance from one position to another, and the overwhelming of the enemy with fire is aimed at. The French value the use of ground. The impossibility of attacking over an open plain, which is, however, but rarely found, is tacitly acknowledged. The Report criticises at some length the French system of driving forward the Groups, and the principle of greater extension as the attack proceeds. This, it says, will deprive the attack of its force.

All the regulations emphasise the necessity of close co-operation of infantry and artillery on the battle-field. As

†This is not quite correct. By Infantry Drill, 1896, the captain ordered the kind of fire. Independent fire was enjoined at decisive ranges, and, when favourable targets offered, at longer distance.—E.G.

silencing shield-protected batteries is not practicable, infantry must attack, even if their artillery has not obtained the mastery. In the Russo-Japanese War it was often found impossible for single batteries to accompany their infantry in the close attack on account of the overwhelming fire of the hostile well-covered and stationary guns. Infantry will have to renounce its favourite practice of attempting to silence guns in action. They had better leave this to their artillery. Occasionally, when they can attack the guns in flank, they may do so, but even they will find it pay better to expend their energies in attacking the machine gun detachments.

The value of the spade in attack, lately overrated, has now been appreciated in more moderate fashion. It would be a mistake to equip every man with an intrenching tool. In Germany, Austria, and Japan, the leader of the first line is rightly granted liberty to charge when he thinks fit. In France different leaders are chosen for fire and shock tactics, the latter being only carried out by permission of the commander of the force. In Germany success is based more on surrounding tactics. In France on penetration.

Since the Franco-German War no cavalry, equally trained in fire and shock tactics, has put both in practice on the field of battle. But all battles have exhibited certain phases which invited cavalry attack. The fighting near Casablanca makes it doubtful if infantry bullets can stop cavalry in full gallop. In all armies continuous defensive lines have been given up, and the separation of artillery and infantry as regards space demanded. The advanced positions much used by the Russians on the Sha-ho teach us little that is new. The experience of their Xth and XVIIth Army Corps were rather unfavourable to them. In England, France, and Japan their value lies, it is thought, in deceiving the enemy and in luring him on to ground favourable to counter-attack. All the books on battle-training lay stress on counter-attack. The Russian experiences in this were not fortunate. Pure frontal sorties were shattered by the fire of the Japanese infantry. The question is a difficult one, which demands clear thinking and will power in the leader. If, for example, counter-attack is to defeat an attempt at surrounding, it may be delayed; yet nothing could be more fatal than to put it off too long when it might affect the issue of the whole battle. Kuropatkin always awaited the reports of the deployment of the Japanese Reserves, so his counter-attacks were always too late or did not come off at all.

It was a matter of indifference what bodies the Russian Reserves overthrew, whether the Japanese Reserve or not, as long as the Russians brought theirs into action in good time.

The question of reserves is much discussed by Colonel v. Csicseries, an Austrian officer of the General Staff, who was attached to Headquarters in the late war.† He thinks the

†Published in *Streffleurs Militärische Zeitschrift.*

battle frontage should be widened, an infantry division taking up about 5 kilometres (3⅛ miles).

All nations are increasing or adopting machine guns.

Colonel Balck discusses the question of machine gun detachments, and thinks the regiment is the smallest unit to which they, as a matter of organisation, should be permanently attached. Whether they are indispensable for an infantry division and whether artillery would not answer better owing to the comparatively slow movements of machine guns, is a moot point. Opportunities for the use of detachments of 6 machine guns in the division are rare. Such detachments draw hostile shrapnel fire. Dispersed singly along the infantry firing line they would be of advantage in the close attack. In France, General Langlois wishes to attach cyclist detachments to the cavalry divisions, and proposes the conversion of rifle battalions into cyclist battalions. Leading military circles, however, are against this, and advocate rather the use of machine guns, because though a cyclist battalion would have a fire-power of two machine gun detachments, yet it would take up double their length in column of march.

B.—INFANTRY TACTICS IN INDIVIDUAL STATES, 1907.

Austria-Hungary —There are no changes of note in the regulations. The Austrian training books, issued in 1903 after the Boer War, resemble in their spirit and contents the German ones of 1889. All hurry in the attack is forbidden, as to secure preponderance of fire time is essential.

Experiments were made with indirect infantry fire from concealed positions, aided by intermediate marks, at the School of Musketry at Brnck on the Leitha. The general result was that, though suitable for fortress warfare and for the slow attack on entrenched positions, yet, owing to the time it took and to the results being inferior to those obtained by direct aiming, this method was generally inapplicable.

France. —The French infantry instructed and led by capable industrious officers, has attained with their new "Infantry Training" regulations a high degree of efficiency. The use of ground is well taught. The "offensive" portion of the attacking force is disposed by depth with narrow frontage, and an inclination to shock tactics. The skirmishers are not visible from afar. Long thick lines only just before the assault. They advance by short rushes, either by groups or man by man, leaving ground absolutely without cover severely alone, and reforming lines of skirmishers behind each bit of cover before they resume the advance. Intrenching tools are frequently and skilfully used. Fire discipline is inadequate. Reinforcements are well led up into the firing line, choosing suitable formations and utilising the ground. Usually they double into the intervals of the firing line.

Reserves are well concealed and skilfully brought into action, their presence not being discovered before they opened fire. If this was not always noticeable, it was because the attack was too much hurried for other than tactical reasons, and the troops forgot their lesson. When this is done the coherence and power of the attack is lost.

There is still a desire among French generals for more binding directions for carrying out the attack than the freedom of the present regulations allow. The Report gives a full description of the directions for the procedure issued by General Lacroix, Vice-President of the Higher War Council, before the Autumn Manœuvres last year, which there is not space here to reproduce. Lieut.-Colonel Dencausse gives in his "*Etude de Tactique*" (Lavauzelles, Paris), a sketch of the French new infantry attack from the manœuvre field. "Firing" and "assault" troops are divided into distinct lines (*i.e.*, Treffen). Fire is from the first directed against the 2nd Line and Reserves when visible, while the German regulations direct theirs on the hostile firing line only, considering that the 2nd Line and Reserves will suffer from it also more or less.

Dencausse recommends the following formation, proposed by General Bonnal, for the attack of a division:—First one regiment as Advanced Line extended on a front of 600 metres; 1st Line assaulting troops,† 1 regiment in 12 contiguous company columns; 2nd Line at 300 metres distance, 3 battalions in open double column. 3rd Line at 300 metres distance, the 4th regiment in contiguous battalion columns in mass. The whole attack to be made in *échelon*.

Germany.—The Report says that certain opinions have found expression in foreign newspapers to the effect that the German infantry is not trained up to the standard of their excellent training manuals. This is not so. The latter but confirmed the principles established by experience, and indicated the right path, further tactical progress, in order to prevent too great importance being given to certain notions founded partly on inapplicable reports received from the Far East. Among these the misuse of intrenching tools. These are only exceptionally of use in ordinary attack. In the attack of entrenched positions they are indispensable. Captain Brandenburg has published a brochure†† giving the results of experiments in creeping forward and in "digging onward," as practised in the XVth Army Corps.††† Military literature has been busy with the German "Regulations." Major Hoppenstedt's "*Taktisches Handbüch des Infanterie Offiziers*" (Mittler, Berlin, 1908) is a noteworthy compilation of earlier essays brought up-to-date. Lieut.-Colonel

† It will be noticed that this is like our old attack formation of 1893, when the assault was to be made by the troops of the second line (see Infantry Drill, 1893, Sec. III., 2a), which seems retrogressive.—E.G.

††See *Militär-Wochenblatt*, No. 3, of 1908.

†††At Strasburg.—E.G.

Balck has published a fourth edition of his well-known "Taktik," Part I. (Infantry Tactics with special reference to Recent War Experience); General Baron v. Falkenhauser has published his "*Zeitfragen der Kriegführung in Ausbildung,*" which deals with all questions of the training and command of troops.

Great Britain.—The want of good training ground hampers the British infantry. Where such exist good work is done. Their war experience is in their favour. Their attack is characterised by extreme caution. Extreme extension, such as we saw just after the South African War, is no longer seen. Sir Ian Hamilton's Report gives evidence of the absence of all schematic attack systems in their training, which is owing to the excellent instruction of each individual man. Use of ground is very good, but fire tactics are not sufficiently developed. Attempts are made to reach within effective rifle range a chief fire position. There are no rules for the further advance from this point. Lord Kitchener said at Meerut that it was impossible for troops to attack over open ground under artillery and infantry fire without the protection of darkness or the use of the spade. Here he went too far. But should attack by day be impracticable by approaching under cover of night, seizing a position roughly reconnoitred in the twilight, bringing up guns and machine guns, and then storming the hostile position at break of day, it may be done. The time and trouble given to the practice of night attacks was a leading feature of last year's training. Troops so trained have a great advantage over those who are not. Darkness may often suddenly set in. The general pointed this out, and said that troops thoroughly trained to them might undertake night operations with confidence, which would be fatal to officers and men only superficially instructed. The cavalry are also practised in night marches and attacks. The attempt to unite machine guns into batteries was pronounced a failure, as they were soon discovered and annihilated by the hostile artillery.

Next year particular attention is to be bestowed on sending reports from the fighting line to commanders in rear. Infantry officers in touch with the enemy can alone judge exactly where he is weak and where strong, so this must be practised.

The use of small flags, indicating the position of troops in action, has been tried at Aldershot, as have also brigade field telephones. On the defensive good progress has been made in invisible trenchwork in false positions and in counter-attack.

Experiments were made with Volunteer Bicycle Corps hurrying down to oppose a sudden landing, which were quite successful.

Italy.—Experiments in coast defence by bicycle battalions after British fashion were made with a combined Bersaglieri Battalion, 2 Volunteer Cyclist Battalions, and a cyclist sanitary

column. After this the four Bersaglieri companies made a long distance march of 1,300 kilometres (roughly, 812 miles), doing on the average 100 kilometres (62 miles) a day. The material and equipment were not good, some machines weighing 32 kilos. (about 70 lbs.).

Japan.—The Japanese infantry are trained according to the old German Drill Book of 1889, with certain minor modifications. Much stress is laid on practice in entrenching in attack and in night attacks. In manœuvres, attacks are not unduly hurried. It is impressed on the men that an enemy is rarely driven from his position by fire alone, so that the decision must be brought about in most cases by the bayonet charge. After the assault the attacking troops must avoid the assembly *en masse*, for fear of offering a large target to the hostile artillery.

In night attacks, if the attacking troops are surprised, they must all at once lie down and remain motionless.

Twelve weeks are allowed for the training of recruits. The last week is thus spent: 4 days trench work; 3 days in open country, with one night attack; outposts, attack, defence, etc., by day and by night included.

Russia.—A provisional issue of the first part of a new "Infantry Training" was made in May. As far as is known, it is not yet finally adopted. Efforts are being made to increase the "individual" training of the Russian soldier. Each company has 4 *Züge*. The *Zug* is subdivided into 2 to 4 sections, and each of these again into 2 or 3 groups of 4 to 6 men. These are always to work together as comrades, even in the firing line. Each one is to be thoroughly conversant with the object to be gained by his group, and is within this limit to act independently and so to be trained to act as group-leader should his non-commissioned officer fall. Company column is practised, and there are always in line or in the firing line intervals left between *Züge*. The fighting front is more extended than formerly.

The Russian new Infantry Drill Regulations† bear the impress of an unsuccessful campaign. This leads to many "instructions" to avoid loss. The formal part lays stress on the necessity for independence and initiative in subordinate leaders. It demands careful use of ground and of movement under hostile fire. War experience, however, does not justify the retention of many close order formations, still prescribed with but little simplification. Endeavours should, it says, be made to avoid the mixture of sub-units.

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† An interesting article on these, translated from the *Novoié Vremia*, was published in the JOURNAL for November, 1907 (Military Notes, Russia), p. 1418.—E.G.

COMBINED TACTICS IN INDIVIDUAL STATES, MANŒUVRES, &c.

Austria-Hungary.†—The new Chief of the Staff took advantage of the Autumn Manœuvres, carried out in Carinthia between the IIIrd and IVth Corps, to give expression to his views on manœuvres. These should, according to his idea, run their course as directed by the commanders on both sides, from the beginning to the end of the manœuvres, without interference on the part of the Headquarters Staff. No time was fixed for the commencement of the movements on each day, nor was any line of demarcation indicated which was not to be crossed by either side at the end of the day's operations. The uncertainty as to the progress of both sides at any given period made the task of the directing Headquarters Staff especially difficult. It was observed that the *Landwehr* divisions were brought up to the required strength by having Regular troops attached to them, and that *Landwehr* batteries of artillery were used for the first time. The Corps had to utilise their 3rd Divisions. There is no space here to enter in detail on these manœuvres, which are epitomised on p. 286 of the German Report under review. They seem to have been very instructive, owing to the freedom allowed to the commanders. On the other hand, the failure, owing to the uncertainty of each other's position, made it almost impossible to bring about a decision within the time allowed; that is, all the troops which were really available for this could not be brought into action. The IVth Corps defended, the IIIrd attacked with 3 divisions on the 7th September. The IVth Corps held with one division, strengthened by artillery, an entrenched position, while with its two other divisions it counter-attacked very skilfully in flank the left division of the attacking IIIrd Corps. The masterly manner in which the Austrian leaders organised and carried out these kinds of counter-attacks was remarkable. The cavalry performed their reconnaissance duties with credit, and small bodies of them also managed to assist in the infantry attack.

Searchlight detachments were used, and the telephone was also made use of in the field. Details of the organisation of these are given in the Report. The XIVth Corps had a regularly organised train, drawn by traction-engines. Benzine was used, and benzine depôts established. Interesting details regarding these, as well as of the personal motor carriages for the staff, etc., are given.

France.—The manœuvres in France in 1907 took place near Angoulême, and were carried out by the XIIIth and XVIIIth Army Corps. The ostensible independent action of the Corps commanders was hardly carried out in practice. Both Corps were given attack problems to solve. Their execution on the

† A brief *précis* of the Imperial Manœuvres in Austria-Hungary in 1907, epitomised from the *Militär-Wochenblatt*, was given on p. 1410 of the JOURNAL for November, 1907 (Military Notes).

12th and 13th September was hindered by the sudden abrupt termination of these manœuvres to unite the two Corps on the 14th for a united attack upon an opponent deployed in position on ground carefully selected long before. The operations were of the cut and dried order. Some troops, who had advanced too far one day, were ordered back, so as not to disturb the intended action of the next day, and so on. The orders were most circumstantial, providing for probabilities and possibilities. Consideration for the troops was carried to excess. The men soon acquire the feeling that they really can do no more, and they accordingly look upon any demands made upon them by their officers for further exertion as unfair.

The cavalry were praised for their strategical reconnaissance work. They never attacked. Their tactical reconnoitring was not so successful, though 12 mounted messengers were detailed (from the reserves) to each regiment for this purpose, and for keeping up the communication with other troops. The umpires and assistant umpires were instructed to forbid any movement not strictly in accordance with the regulations. They were few in number, and their work was much hampered by interference on the part of the directing staff. On the defensive many attempts were made by troops in advanced positions to lure the attacker on to ground exposed to heavy fire, especially of artillery, and then, when the attack was in full swing, to surprise him by a vigorous counter-attack in flank, carried out by an infantry brigade, assisted by horse artillery. This is the sort of thing any possible enemy of the French must be on the look out for in future.

The provision trains of motors drawing 2 tons, doing 18 kilometres an hour (100 kilometres a day), of the XVIIIth Corps answered well.

The Report gives a short description of the French attack, which aims at thorough co-operation of the infantry and artillery. Envelopment and piercing the centre are both permitted. Their method of using their reserves seems to favour the latter. The encounter battle is avoided at manœuvres. The cavalry is intended to attack from many directions, as opportunities offer, with the *arme blanche*. They endeavour to mislead the hostile infantry by false movements to deliver their fire in a wrong direction, then suddenly to attack them from another quarter in a deep formation *en masse*.

Germany—In 1907, the VIIth Army Corps and the A Cavalry Division manœuvred against the Xth Army Corps and the B Cavalry Division, in Westphalia.† Each Army Corps had 3 infantry divisions. Each Army Corps had a telephone detachment, 1 battalion of heavy artillery of 4 batteries, 1 cyclist company, 1 balloon detachment, and a corps field-telegraph.

†A brief notice of these manœuvres will be found on pp. 1413-14 of the JOURNAL for November, 1907, and the detail of the troops employed on p. 744 of the JOURNAL for June, 1907.—E.G.

The Headquarters Staff used motors. The cavalry divisions of 6 regiments and 2 batteries of horse artillery, had a machine gun detachment, a cavalry pioneer detachment, and half a troop of mounted signallers. The VIIth Army Corps had a wireless telegraphy detachment; the Xth Army Corps had a searchlight detachment. An automobile traction-train was used in each case for provisions. The ammunition and other supplies were carried in improvised supply columns. Each battalion in both of the Army Corps had field-kitchen wagons attached to it, which gave complete satisfaction, each company having a two-horsed wagon, which carried one large boiler, containing 235 litres (about 51¾ gallons) and a smaller one for coffee.

The Report praises the conduct of these Imperial Manœuvres. It says that many criticisms in the Press were superficial.† The writers praised the "*élan*" of the French and the "*swing*" of the British battalions, but neglected to compare the weight carried and the unusual length of the marches made.†† The marching and discipline on the Weser were excellent. The short duration of these manœuvres is criticised in face of the prolonged fights in Manchuria. This is a matter of expense. The advantage of leaders having to practise coming quickly to decisions is not to be overlooked. The troops have to learn as much as possible in the time available, and, of course, the effects of fire cannot be simulated. The infantry made a favourable impression with their characteristic German attack; their skill in the use of the spade on the defensive by no means hampered their offensive spirit. The energetic advance, delay in opening fire, slight extension of the units, the reinforcement of the firing-line directly fire was opened, disposition by depth, and the rapid progress of the attack, were noticeable. The artillery deserved equal praise. Firing for the most part out of concealed positions, they never forgot the principal fire-effect before cover. Accompanying the infantry in the close fight was difficult, partly owing to the rapid advance of the latter, and partly to the ground. Telephone signalling and telescopes were used with good effect. Though the action of the cavalry has been often criticised, but their good reconnaissance work was acknowledged. It has been said that they showed no boldness, no decision; that they should have protected the retreating infantry by attacking the pursuers with rifle fire, and so gain time. If cavalry is always told its mounted attack is hopeless and dismounted action is always inculcated in peace, they will rarely venture mounted attack. Thus onlookers gain the impression of their "indecision."

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†This may refer especially to the severe remarks of Colonel v. Gädke, briefly summarised in the June No. of the JOURNAL, 1907 (see above). Colonel Gädke is a competent critic, but his strictures require to be taken with a grain of salt.—E.G.

††Some of the German Troops had to march 60 kilometres (37½ miles) in the day.—E.G.

CAVALRY TACTICS IN 1907.

General.

Progress in 1907 was satisfactory. Opinions as to the use of cavalry, which had, since the Boer and Russo-Japanese Wars, begun to spread far beyond the nations engaged in these, have gradually changed, especially in England, which had nearly converted its cavalry into mounted infantry. It has been recognised that the latter cannot really take the place of cavalry. The leading cavalry opinion of all Powers, excepting Russia, is that cavalry must fight mounted first of all. The Russian cavalry alone cannot shake off its predilection for dismounted action. At the same time it is indispensable that cavalry should be trained to shoot well.

In contrast with German cavalry training, the English lays especial stress on the *offensive* in *dismounted* action. The number of rounds carried by the German cavalry soldier does not admit of this. The question of supplying cavalry divisions with their own ammunition columns is, therefore, a burning one. It were well to follow the English example in this. The necessity of cavalry engaged in reconnaissance being trained to the use of all technical aids in the way of signalling and communication is increasingly evident; but the experiments made with these in staff rides, etc., especially in Germany, show that the individual mounted messenger is still indispensable.

The experiment of training cavalry in the course of two years' service in France shows how hopeless this is. The French cavalry can, therefore, hardly be expected to keep up to present requirements. May the German cavalry be saved from a like fate!

Cavalry in Individual States.

Austria-Hungary.—The new Cavalry Musketry Instruction has now been introduced throughout the service. This lays particular stress upon the necessity for good individual instruction and on efficient control and direction of fire.

Decisive range now extends to 800 paces, and medium from 1,200 to 1,600.

The manœuvres in 1907 in Carinthia were held in such a mountainous country that really the cavalry had no chance of distinguishing themselves. The squadrons attached to the corps and divisions were so few in number and so entirely occupied with scouting and messenger duties, that they could not be employed tactically on the field of battle. The scouting was well done, and in the hilly country the cavalry used dismounted action to force some of the passes. They united their fire action with the cyclist and machine gun detachments. So few were these detached cavalry that none could be spared as messengers for the infantry troops that were pushed forward. One small cavalry action took place near Tarnor. This was witnessed by Major-General Scobell, Inspector-General of British Cavalry.

France.—The Report goes into the causes of the reduced efficiency of the French cavalry, owing to the introduction of the two years' service system for the cavalry as well as the infantry, which has been alluded to above. They are sufficiently obvious. The prospect of the French cavalry ever attaining to the superiority now enjoyed by the German cavalry is thus diminished. The advantage of their permanent cavalry divisions is neutralised by the greater number, better armament (the lance), and better training of the German cavalry. The excellent performance of the French cavalry in Morocco has led to a discussion as to whether this want of cavalry cannot be made up by the raising of new Spahi Light Cavalry.

It is proposed to meet the serried onset of the German Lancers, which, it is alleged, can only be carried out in rigid lines by manœuvring. It is thought that if the strong German first line of attack be opposed by a weak front line, while the bulk of the force held in hand as reserves attack the German flanks and rear, it will be successful.

This is to be accomplished by certain *échelon* formations.† Without going into these we may be permitted to doubt if a well-trained observant opponent would allow them to be carried out. However, they do not depend on manœuvring alone. The recent composition of the French Cavalry Divisions in the autumn of 1907 show that they are beginning to value determination and force in attack more highly. Each cavalry division comprises 3 brigades (a Cuirassier, a Dragoon, and a light cavalry brigade). The reduction of the Corps cavalry brigades to one light cavalry regiment is contemplated. Each cavalry brigade is to have 2 machine guns attached. They are to fire from a light two-wheeled cart. Cyclist battalions will probably be attached to the cavalry divisions.

Captain Barault's new light bridging equipment was tried in 1907. Its advantage consists in its being composed of parts all easily replaced and easily put together. Each squadron has now to teach riding to 4 sappers and 5 recruits. They remain with their squadrons until required for combined construction work under their officer.

The Report gives a short account of the French Cavalry Manœuvres of 1907, and says that but little use was made of dismounted action.

It was anticipated that all the eight cavalry divisions would carry out cavalry manœuvres in 1908, to test the new organisation.

Germany.—In 1907, especial attention was given to thorough training in reconnaissance, in order to make those troops who could not take part in manœuvres acquainted with the technical auxiliary services (wireless and lamp signalling, motor and traction engines, etc.), which are now made use of.

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†See the REPORTS for 1906, p. 1375, of the JOURNAL for November, 1907.—E.G.

The cavalry musketry instruction has been brought into line with that of the infantry. If our cavalry were furnished with a better weapon,† and given rounds of rifle ammunition to carry on a long fire-fight, the present prejudice against dismounted action would soon give way. It is necessary to encourage our cavalry to make more frequent use of the rifle. The cavalry spirit is far too deeply ingrained in our horsemen to fear that the rifle will ever supplant the lance; but he must not, when dismounted, be ever longing to jump on his horse again, nor should his action be limited to a brief defensive and timely retreat.

Views as to the employment of machine guns with independent cavalry are given on the cover of the "Regulations." During the cavalry fight the machine guns, unless compelled by the rapid course of the action to take position wherever they are, should move forward and to a flank of the cavalry formation. They should first fire at the hostile cavalry, then at its guns. During the action and in pursuit they should act against the flanks and rear of the hostile force. Machine guns must always work in pairs not singly.

The Report goes into details of the various cavalry manœuvres held in Germany in 1907, which we have not space to translate here. The Imperial Manœuvres in 1907 offered no opportunities for thorough cavalry reconnaissance, as the hostile infantry divisions were brought into contact on the very first day. But this gave good practice for cavalry tactical employment on the battle-field, which was taken good advantage of. It proved how suitable cavalry is for staying the advance of hostile infantry columns, especially by the fire-action of its artillery and machine guns.

The tactical reconnoitring on the field was not considered satisfactory. The experience previously gained, that flag signalling with mobile cavalry divisions in the field took too long, owing to the time picking up stations involved, was confirmed.

Great Britain.—The race between the *arme blanche* and the carbine has ended in the victory of the former. "Cavalry Training, 1907," gives expression to this. The British cavalry, which was on the point of being turned into mounted infantry, may welcome this fact with satisfaction.

The Report quotes at length from the above book in confirmation of this view. It says that, owing to the organisation of "Protection Cavalry," the task of the divisional cavalry is lightened, so that the distribution of only 2 squadrons of Yeomanry to each infantry division is not so sparse, divisional cavalry being only required to perform the reconnoitring duties within short reach, and to furnish messengers. They are not required for tactical action in close bodies. The English Regu-

†The German carbine in use is far inferior to the German infantry rifle.—E.G.

lations attach value to *offensive* action when dismounted. The new "Training" is certainly a step in the right direction, and marks progress. The Report epitomises very briefly Sir Ian Hamilton's Report on the improved cavalry action in 1907.

Russia.—The report of cavalry progress in Russia is very brief. There are signs, it says, that, notwithstanding the predilection in Russian cavalry circles for dismounted fighting, there is a revival of the *arme blanche* party even for action against infantry. Mounted attack was, therefore, once more to the front in the great manœuvres held at Krassnoje-Spelo, when the Czar was present, and the Grand Duke Nicholajewitch commanded on the 22nd August, 1907. There was no opportunity for cavalry reconnaissance on an extended scale, owing to the short distance between the contending troops at starting.

The cavalry staff rides were held in June, 1907, under the direction of General Ostrogradski, in Podolia.

In the *Russian Cavalry Journal*, Vol. 7, 1907, appeared an article on "The Russian Cavalry in the War against Japan." In Vol. 17, one on "The Don Cossacks as Despatch Riders in the Russo-Japanese War."

FIELD ARTILLERY TACTICS, 1907.

General.

The chief events affecting Field Artillery in the year 1907 are the issue of the German Field Artillery Training of 26th March, 1907, and the impending increase of the French field artillery as described in the reports on these States.

The solution of the field artillery tactical questions in Germany followed the course indicated as probable in the Von Löbell Reports for 1906. Among critical questions was that of covered or open artillery positions. This is still discussed, though our new Regulations decide it, as far as Germany is concerned. Then that of 4- or 6-gun field batteries; the part field-howitzers and heavy artillery have to play; the co-operation of infantry and field artillery; reconnaissance and observation; the communication of information and orders in action; use of ammunition and its supply in action; aiming out of covered positions; infantry support; the armament of gunners, etc. Then also the question of field practice with live shell, the indication during manœuvres of what bodies are being fired on, etc. We brought to the notice of our readers two years ago the experiences gained in the Russo-Japanese War. No great changes are to be noted, but these have, since then, found expression in the framing of the recent regulations of most Powers.

FIELD ARTILLERY IN INDIVIDUAL STATES.

Austria-Hungary.—The Report mentions the issue of new Field and Mountain Artillery Training Regulations† :—Field

† "*Exercir-Reglement*" *für die K.K. Artillerie III. Teil. Heft* 2, 3, 4. *Wien, Hof und Staatsdruckerei*, 1907, Kr. 2.80.—E.G.

howitzers, mountain guns, artillery in action, etc., and goes into details of these various services. In war the fighting battery of *field howitzers* consists of 6 howitzers, each with its ammunition wagon, 1 telephone wagon, and 6 ammunition wagons (2nd Line). The ammunition column has 5 wagons. The baggage train has 1 wagon. In peace only 4 howitzers are equipped. The half-section consists of 1 howitzer and 1 ammunition wagon. The ammunition wagon's place in action is 8 metres behind and 2 metres to the right of the gun-limber.

There are 5 gunners with each howitzer, and 3 with each ammunition wagon. The trot is the usual pace when under fire; on favourable ground the gallop may be used for short distances. The kinds of fire are "Battery fire" and "Section fire," "Group fire" and "Scatter fire." Fire of single guns with different degrees of elevation and lateral trailing. The regulations for scouting, preparation and opening of fire, are similar to the German. It depends on circumstances whether the telephone wagon is taken into the firing line or not. The 2nd Line of wagons is placed 500 metres behind the battery. Two batteries form a division; 2 divisions = 1 regiment.

The *mountain battery* has 4 guns, each having 1 common shell and 1 shrapnel mule. Then a 1st Line of 8 shrapnel and 4 common shell mules, a 2nd Line of 7 shrapnel mules and 1 common shell mule, 9 provisions, 1 horseshoe, and 4 forage and equipment mules, also 11 mules for officers' baggage, bread, meat, and field kitchen. Lastly, a baggage train of 5 mules carrying the men's baggage and forage.

The organisation is similar to that of the field howitzers.

The Report gives long extracts from the regulations as to conduct in action, which there is no space here to reproduce. As objectives for fire those are to be chosen, the destruction of which would most further the success of the chief arm. Success is to be sought by the skilful combination of direct and indirect fire according to the requirements of the moment. The field and mountain batteries are to be used in those cases where heavy artillery, owing to its less mobility, and the difficulty of bringing up its ammunition are not available, and also to combat unarmoured fortress artillery by direct and enfilade fire, using the latter also to support the attacking infantry from a flank. In defence they are to be used in like manner, and enfilade hostile trenches, etc.

France.—On the 1st October a new issue of Field Artillery Training (last edition 1903) was made.

According to the project of the War Minister for the increase of the French artillery, there are to be: 729 field batteries, 18 "Rimailho," 14 mountain batteries and 16 horse artillery batteries in France and 15 field, 4 mountain batteries in Algeria, etc. This means a total increase of 297 batteries. The field and horse artillery batteries have 4 guns, the "Rimailho" 2 guns each. This will bring the number of guns in an Army Corps up to 144, like the German. The effect of this increase is the

greater owing to the deduction of the 4th Battalion of the infantry regiments, so that the proportion of guns per 1,000 infantry will be no less than in the German Army. The heavy artillery of an army is not included in the corps, but is "army artillery" at the disposition of its commander. It is generally intended for use against strong entrenched positions, etc.

Germany.—The Report gives full details of the new issue of *Field Artillery Training*.† "Group fire" is introduced; each gun fires as rapidly as possible, by order of its officer, a certain number of successive shots given at the distance indicated by the battery commander. A good position and stability are requisite for each gun. When possible the protection afforded by the shield is to be increased by earth thrown up between the shield and the ground. The battery consists of 6 guns and 6 ammunition wagons. Each gun with its wagon are in action under a leader. On the march "double column" is formed to shorten the length of the column, *i.e.*, each gun has its wagon alongside it.

The main task of the artillery is to furnish the most efficient support to the infantry. The mass of the artillery should be early on the field of battle, and ready for action. In the first place artillery units not included in divisions must be disposed of, so that they may come effectually into action as required by the situation without loss of time. Disposition by groups is preferable to long lines of guns.

Open and half covered positions favour early opening of fire. Quick change of objective and firing at troops in motion. Covered positions necessitate good observation points. To support infantry effectively and bring about a decision half-covered or even positions in the open are best. Firing over the heads of one's own troops cannot be avoided. If they have passed 300 metres beyond the muzzles of our guns and up to 300 metres of the enemy's position, it is safe. Then the guns must move forward. Officers with good field glasses should be sent forward with the 1st Line, to indicate by signal the distance it is from the enemy, etc. The officer commanding the artillery should send forward some mounted artillery officers with the cavalry before an action to reconnoitre special points on which he requires information before he himself goes forward for this purpose.

The new "Instructions for Firing," dated 15th May, 1907,†† are a great improvement on those of 1899. Every improvement proposed by our own specialists, or observed in the practice of other armies, has been carefully examined, tried, and, where desirable, embodied in our new regulations. Care must be taken not to prolong group-fire, if likely to lead to waste of ammunition. Rapid-fire is only to be used when great losses

†*Exercir-Reglement für die Feld-Artillerie*, 26 März, 1907. Berlin: Mittler Sohn. M. 1.40.—E.G.

††*Schiess-Vorschift für die Feld-Artillerie.* Berlin: E. S. Mittler Sohn. 1.05 Mk.—E.G.

endanger the regular service of the battery or in great emergency. Technical details of different kinds of fire to be used under various circumstances are given.†

Japan.—The Japanese artillery received their new Field Artillery Training at the end of 1906. The experiences of the last war were embodied in these instructions. The main object to be attained is thorough co-operation of the infantry and artillery. Covered positions have proved disadvantageous in war, and should, therefore, only be chosen when absolutely necessary. The intervals between the guns are to be increased. Supporting batteries are to accompany assaulting infantry up to within decisive distance. Rapid fire is to precede the assault; constant communication with the infantry is to be kept up by every available means. Field messengers, connecting files, megaphone, etc. Batteries with protecting shields and well entrenched infantry can only be reached by high-angle fire. Change of position is only to be made when unavoidable. A silenced opponent is still to be kept under by slow fire. The regulations recommend firing on the staff, on balloons, field observatories, machine guns, and searchlights, and even firing at night. Signalling during the fight is abolished, and certain movements in section column.

Russia.—The Report has little to say regarding artillery progress in Russia, beyond giving a very brief *résumé* of the Grand Duke Nicholaewitch's Annual Report on the troops in his district (St. Petersburg), in which he says that, thanks to the comprehensive spirit shown of the new regulations, good artillery progress has been made, and the shooting much improved. They were beginning to utilise ground better, and to fire to good purpose at suitable objectives. In the modern battle with dispersion by groups it is indispensable to link up the batteries with the artillery staff and commander by means of the telephone, etc. Horse artillery must advance more rapidly and well to the hostile flank, so that they may be able to harass the enemy by their fire up to the last moment, before their own cavalry comes in contact with them.

In his remarks on the war games held in March and April, 1907, in the district, he said that neither the commanders of detachments or the general staff officers had mastered the modern ideas as to the proper use of artillery. "The complicated technicalities of this arm, its eminent importance in the modern battle, and the recent changes in its tactical employment, require careful study, demanding time and close application."

†The extraordinary number of brochures, guides, and handbooks explaining in short or extended compass the new regulations published in Germany, shows how eagerly German officers study their profession. Many of these deal especially with the co-operation of infantry and artillery, and are well worth the attention of our officers. They are mostly quite inexpensive.—E.G.

(To be continued.)

THE MUSSULMANS AND COMPULSORY SERVICE IN BOSNIA-HERZEGOVINA.

Translated by permission of the Minister of War from the *Revue Militaire des Armées Etrangères.*

Continued from December JOURNAL, p. 1707, and concluded.

V.

MILITARY RESOURCES PROVIDED BY THE RECRUITING LAW.

THE recruiting statistics have not been published in Austria since 1894. It is, nevertheless, possible to arrive at certain approximate conclusions.

In 1894, for an Austro-Hungarian population of 42,800,000 inhabitants, the number of young men entered on the Recruiting Board lists was 365,000. In 1907, for a population of about 48,000,000, this number ought to be approximately 408,000.[1]

Of this total, 210,000 were passed as quite fit for service: 130,000 being incorporated in the Active Army, and 80,000 classed in the *ersatz-réserve*.

If these proportions are assumed for Bosnia, there are, in that country, 14,500 men on the lists, of whom 7,500 are fit for service, and, with 12 classes, taking into account the wastage, 70,000 men fit to bear arms in time of war.

This number of 70,000 ought to be a minimum, because "the natives reported, at the inspection, unfit for service are the exception."[2]

These 70,000 men are not all militarily trained. As a matter of fact great consideration has been shown to the Bosnians in the way the obligation of military service has been imposed. The annual contingent of 1,200 men at the beginning has only been increased in a very progressive fashion. For several years it only numbered about 3,500 men.

If, for each year, the wastage is calculated according to the Austro-Hungarian method, which puts it uniformly at 4 per

[1] Census of 1890: 41,360,000 inhabitants; Census of 1900: 45,420,000. Annual increase in round numbers: 400,000 inhabitants.

[2] Danzer, *Unter den Fahnen*; Vienna, 1889.

cent. per annum, the number of trained native soldiers disposable for mobilisation is as follows:—

3 active classes	9,660 men.
9 classes of reserve	21,420 ,,
Total	31,080 men.

In comparison with the native population, the proportion is, then: 1 man called up for 492 inhabitants; 1 mobilisable soldier (Active or Reservist) for 55 inhabitants, while for the rest of the Monarchy it stands at: 1 man called up for 354 inhabitants; 1 mobilisable soldier (of the active army, the reserve, the *ersatz-réserve*, and the *Landwehr*, exclusive of the *Landsturm*) for 26 inhabitants.

VI.

The Impression Produced by the Military Law on the Bosnian Populations.

As far as the native Mussulmans were concerned, the provisional law of 1881 only, in short, reproduced the prescriptions of the Turkish Law, according to which every Mussulman owed military service. For the Christians it simply substituted personal service for the military tax imposed by the Turks.

For all it provided numerous cases for exemption, definitive or temporary; it admitted of postponement of service and of substitutes, and it was thus conceived in a very liberal spirit. Moreover, detailed instructions, published at the same time as the Law, laid down special regulations for the respect of the Mussulman religion,[1] and by a proclamation the Governor-General, Baron Dahlen, at the same time set himself to reassure the populations:—

"This military law, which provides exemption, and under which everything has been done to render its execution less onerous," he wrote, "contains also the necessary regulations, so that none of you, to whatever Faith he may belong, will be prevented from fulfilling his religious duties.

"His Majesty the Emperor and King thus proves to you that he knows how to make allowance for your habits, customs, and the condition of things obtaining in the country; that he respects equally the convictions and religious sentiment of each one, and that, while not wishing to favour any religion at the expense of the other, he also intends that the greatest regard should be paid to all."

On the other hand, the Austro-Hungarian authorities hoped that a certain number of the Mussulmans, Turkish Reservists, disbanded in 1878, would voluntarily re-enter the army in consideration of the pecuniary advantages offered. They would have partially formed the first levies, and the Bosnians would

[1] See this Instruction in the Annexe.

thus have been accustomed little by little to the idea of military service.

In spite of the Government's liberal and benevolent proposals, in spite of the relatively-speaking favourable local circumstances—custom, on the part of the Mussulmans to serve, on that of the Christians to pay a military tax—the new recruiting law was badly received.

The Catholics and the Jews submitted tolerably quickly. On the other hand, those belonging to the Orthodox Faith contended that the law chiefly favoured the Mussulmans, and these in their turn, the richest and most intelligent of he Bosnians, showed themselves rebellious, not so much at the idea of military service as at serving in the same units with Christians and under Christian leaders.

In the time of the Turks, the army was composed of Mussulmans alone. There was no *mélange* of religions, and, moreover, its heads were all Mussulmans. "The Turkish Army is really a national army, which sees in the Padishah not only the Military Head, but also the successor of the Prophet, personification of the religious idea."[1] Be that as it may; as soon as the Law was made known, a part of the population emigrated to the land of Islam. This departure was of peculiar gravity, owing to the special position held by the Mussulmans in Bosnia, who thus carried away with them part of the riches of the country.

In addition, in December, 1881, a month after the promulgation of the new law, an insurrection broke out in Herzegovina. The Slavs of South Dalmatia, neighbours of Herzegovina, had already gained, in 1869, after a resistance of three months, the concession by the Austrian Government, that it would provisionally renounce the right of imposing on them, not even of active service, but simply of service in the *Landwehr*. In 1881, the Government renewed the attempt to require from them service in the *Landwehr*. The Dalmatian mountaineers immediately retook up their arms, and their example was followed by the Slavs of Herzegovina when the law made personal service compulsory.

This rising was the work in the main of Christians, who were joined by a large number of Mussulmans—Slavs by extraction. The obligation of military service was the immediate cause of this. A deeper cause still was the vexation of the Slav populations at not having achieved their independence, which would have allowed of the formation of a Great Slav State, and which was the object of the insurrection of 1875.

The corps of occupation consisted of 60,000 men, while the concurrent expenses amounted to 21 millions of francs (£875,000).

In the month of May, 1882, the pacification having made great progress, the recruiting operations commenced in May in

[1] *Cologne Gazette*, 14th December, 1907.

three of the six districts; those of Sarajevo, Dolajna-Tuzla and Banjaluka, that is to say, the centre and north of Bosnia. In the Mostar district, the law was only put in force from the 20th June in those districts of the north, which had taken a small part in the insurrection, and only during the course of July for the rest of Herzegovina.

The *revisions* of 1883-85 went off with complete order and with the co-operation of the population.

At the end of 1884, at the time of the discussion on the Budget of 1885, the Minister of Finance declared, before the Delegations, that one of the best proofs of the pacification of the people and of the amelioration of the political situation in general was the ease with which the recruiting went on among all the faiths, and in all classes of society. Before 1884, the Mahommedans, he said, seemed determined to elude it, even if they had to emigrate.

According to the *Pester Lloyd* (May, 1885), the improvement in the political situation made slow but steady progress, and from the point of view of the army the zeal of the natives to accomplish their military duties was worthy of remark.

Since the insurrection of 1882, there has been no further agitation in Bosnia-Herzegovina. The natives of the different religions have accepted the obligation of service.

The rivalries of race and religion, though still very acute in these countries, have had no influence on the discipline of the Bosnian troops in time of peace; will it be the same in time of war, during a struggle against neighbouring populations, with whom the Bosnians have close ethical or religious affinities? It is not believed that there will be any difference.

The Bosnian soldiers are well disciplined, skilled shots, very hardy in their mountains, but, on the other hand, less fit to stand arduous work when they serve in Austria or Hungary. They are eager to learn. Although their education has been of the slightest they nevertheless display a natural aptitude in the schools organised in the barracks. A great many learn to read and write fluently in German, and also keep accounts.

In return for compulsory service, the Bosnians have received no special rights. In no way are they Austro-Hungarian citizens. Their electoral rights are limited, and this only in certain communes, to the election of the Municipal Council. The consultative council, to assist the chief of the district, is nominated by the Government. The natives have no representative exercising any real power. They are in a complete state of pupilage.

It is surprising that in exchange for the blood tax no civil or political rights have as yet been accorded.

The Austro-Hungarian administration has, however, done much to improve the condition of the natives. Popular education, which practically formerly did not exist, has been organised. The different religious faiths have been treated in

a spirit of "complete equality, with the same rights for all."[1] Justice has been introduced into the administration. The encouragement given to agriculture and the construction of roads and railways has considerably developed economic prosperity, while material security has been assured.

These advantages have been considered of sufficient value as a set-off for the imposition of military service, without bestowing on them as compensation other advantages.

For the rest it must not be forgotten that, while passing under the authority of Austria, the Bosnians have remained in law Ottoman subjects. On the other hand, accustomed by the Turks, the one—the Mussulmans—to serve in the Army, the others—the Christians—to pay a military tax, they ought, after a more or less long period, to accustom themselves without difficulty to compulsory service. And, in fact, after the Mussulman emigration movement and the insurrection, which was chiefly of the Christians, in 1881-82, nothing has been reported which can be considered as pointing to the failure of the recruiting law in the occupied territory.

The Austro-Hungarian authorities on their side have neglected nothing in order to arrive at this result. And one of the most potent causes of success has been the tactful and benevolent—although severe in case of need—but always just manner in which the officers have dealt with the young Bosnian soldiers.

VII.

Organisation of the Bosnian Troops.

1. *General Arrangements.*—The natives of Bosnia-Herzegovina have not been distributed among the troops of the Common Army of the Empire. Allotted solely to the infantry and to the baggage train,[2] they form special corps: four regiments of infantry, one battalion of Chasseurs, and some train detachments. These last have not, properly speaking, an independent existence. Attached to one of four infantry regiments, they bear its number. In time of peace the natives who are serving in these detachments are allotted to the train squadrons stationed in Bosnia-Herzegovina. When they pass into the reserve they are attached as drivers to a regiment of Bosnian infantry.

The organisation of these troops has been carried out in a very progressive fashion. As a commencement, in 1882, there was raised in each recruiting district a company of infantry as a training detachment, and a detachment of the train. In 1885 a new company of infantry was raised in each district and a

[1] Imperial Decree of 1878.

[2] It is possible that, starting from 1908, they may be incorporated in the mountain or fortress batteries and the machine gun detachments stationed in Bosnia-Herzegovina.

battalion staff. In 1889 four new battalions were formed and four others in 1892. On the 1st January, 1894, these twelve battalions were divided into four regiments,[1] each increased two years later by a battalion, and, the 1st October, 1902, by one (17th) company. The 1st October, 1903, the four seventeenth companies were united in order to form a battalion of Chasseurs.

The actual position at present is as follows—

Four regiments of infantry of four battalions of four companies each and a cadre battalion at the depôt.

One battalion of Châsseurs of four companies and one cadre company at depôt.

Each regiment recruits in one of the four recruiting districts of the occupied territory, where one battalion is always retained. The district of Sarajevo furnishes, moreover, some recruits for the Chasseur battalion.

Three battalions of each regiment are consequently in garrison outside Bosnia-Herzegovina, as well as the battalion of Chasseurs.[2]

These regiments have neither bands nor colours, and wear a special uniform.[3]

2.—*Native Non-commissioned Officers.*—When the cadre of non-commissioned officers and regimental artificers cannot be formed from natives, non-commissioned officers and soldiers from the Regular Imperial Army can be attached to the Bosnian Corps. The whole of the appointments can be given to some non-commissioned officers or soldiers, as far as regards bugle-sergeant-majors, mounted bugle-sergeants, sergeant-majors, accountant non-commissioned officers, baggage-masters, clerks, and bandsmen.

In each company or battalion cadre at the depôt, two men (tailor and bootmaker), and in each company half the sergeants, can be drawn from the Regular Army.

When of equal rank, the Austro-Hungarian soldier takes command before the native.

3. *Native Officers.*—Since 1879 a military boarding-school has been founded at Sarajevo. At first only a simple primary school of eight classes, it was reorganised in 1885, so as to

[1] The 1st Regiment formed with the battalions forming Corps No. 1 (raised in 1885), No. 5 (in 1889), No. 9 (in 1892); the 2nd Regiment formed with the battalions No. 2 (raised in 1885), No. 6 (in 1889), No. 10 (in 1892); the 3rd Regiment formed with the battalions No. 3 (raised in 1885). No. 7 (in 1889), No. 11 (in 1892); the 4th Regiment formed with the battalions No. 4 (raised in 1885), No. 8 (in 1889), No. 12 (in 1892).

[2] The Bosnian troops are garrisoned as follows: Battalion of Chasseurs at Wiener-Neustadt; 1st Regiment (3 battalions at Vienna, 1 battalion at Sarajevo); 2nd Regiment (3 battalions at Grätz, 1 battalion at Banjaluka); 3rd Regiment (3 battalions at Buda-Pesth, 1 battalion at Doljna Tuzla); 4th Regiment (3 battalions at Vienna, 1 battalion at Mostar). Next spring the 4th Regiment will leave Vienna for Trieste.

[3] Annexe II.; the details of the peace effective.

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provide a special preparatory course for the Cadet Infantry Schools.

The sons of native families of the better class are accepted as pupils, who desire to enter a Cadet School or wish to acquire the knowledge that they ought to obtain in a Secondary School. The sons of officers and of civil or military functionaries are also received.

Besides the conditions of physical fitness, a candidate for the school must be at least 9 vears old. In order to enter the first or second class he must not be more than 13, and 15 to enter the third.

At the end of 1884 the school had already 94 pupils, 9 Mahommedans, 33 Catholics, 48 Orthodox and 4 Jews.

Natives can be appointed officers in the Active Army, in the Reserve, or on the unemployed list by special appointment, when recommended on account of their social position, character, loyalty, etc., and have fulfilled the conditions laid down by the regulations for promotion in the Austrian Army.

Up to the present this right seems to remain in the domain of theory. There are very few native officers in the active Bosnian forces. On the other hand, there are 69 officers or cadets in the cadre of the reserve of these troops, and their number is increasing.

Natives compelled to serve, of exemplary conduct, can go up for an examination before a special commission, or are allowed to show by certificate that they have come up to a certain standard of efficiency fixed by the general commanding the 15th Corps. If successful they are, after approval by the military authority, allowed to go through the course of instruction for officers of the reserve. This course is organised at Sarajevo, and it receives, as a rule, 15 candidates yearly.

When the natives are fit to become reserve officers they go up, after a year of service, for the examination for officers of the reserve. If successful they are nominated to this grade as soon as vacancies occur.

4. *Military Chaplains for the Natives.*—As the administration lays stress on there being real equality for all before the law, equal treatment is accorded to all the religions among the Bosnian troops. The military chaplains, therefore, include among their numbers not only Catholic and Orthodox priests, but also Mussulman. Two military Imaums assure the religious service of the incorporated Mussulmans. They are under the General Commanding the 15th Corps, are subject to the military tribunals, and on the same footing as military chaplains of the 2nd Class (ranking as captains).

5. *Employment of Bosnian Troops Outside Bosnia-Herzegovina.*—Up to 1890 these troops were quartered in Bosnia. That year for the first time two battalions were ordered to Austria to take part in the manœuvres of the 14th Corps.

The regulations of the 29th December, 1890, and the 24th March, 1891, authorised, with the view of more complete

military training, the stationing of Bosnian troops in Austria or in Hungary.[1]

The employment of these troops is settled exclusively by the Emperor. They can be utilised in the same way as any other corps of the Regular Army.

6. *Regulations Applicable to the Bosnian Troops.*—These regulations are those for the Austrian Army, except where special modifications have been made for the Bosnians.

7. *Military Jurisdiction for the Native Troops.* — The military judicial code has been made applicable to the native troops since 1882, with certain modifications.

As regards desertion, every native soldier is held to be a deserter under the following circumstances:—

Three months illegal absence, being on active service;
Exceeding leave by three months;
Refusing to respond after three months to the summons to active service.

In the Bosnian troops alone, a man who voluntarily mutilates himself is sent to a disciplinary company. This punishment was at one time in force for the whole Austro-Hungarian Army.

8. *Military Pensions for the Native Troops.*—The law of the 12th March, 1899, fixed the pensions of both the native soldiers and their wives and orphans:—

a. Annual Pension for Invaliding.—Soldiers have the right to an invaliding pension after ten years' service, or when before its completion they become unfit to serve owing to a wound or to an accident the result of duty on which they have been ordered.

The pension may be provisional, and in this case be granted for three years or more.

After 18 years' service non-commissioned officers are entitled to a pension without having to be invalided.

b. Additional Allowance for Wounds, etc.—This additional allowance varies according to the nature of the injury from 96 to 288 crowns (£4 to £12) a year.

c. Pensions for Widows.—The widow of a soldier receives a pension according to her husband's rank.

In the case of a polygamous Mussulman soldier, the pension is divided between his widows.

If a soldier is killed in action or dies during the following year from wounds received or illness brought on by war, the widow receives an additional pension of from 50 to 100 crowns £2 1s. 8d. to £4 3s. 4d.). If she is incapable of working and without resources, she receives moreover, while she remains in this condition, an annual addition of 96 crowns (£4).

d. Pensions for Orphans.—An allowance of 48 crowns per annum (£2) is made for the education expenses of orphans.

[1] Verordnungsblatt für das K.u.K. Heer, 9 May, 1861.

Fatherless and motherless children receive in addition 50 to 100 crowns (£2 1s. 8d. to £4 3s. 4d.) per annum; but the whole sum for one family is not allowed to exceed 360 crowns (£15).

9. *Effectives and Cost of Maintenance of the Bosnian Troops.*—All the Bosnian companies are kept up to the present at the normal peace strength.

The effective budgetary total is 400 officers or functionaries, and 6,800 men.

The cost of the Bosnian troops is included in that for the occupied territory. Details of this expenditure are not given. In practice it is laid before the Delegations for information, without their having the right to exercise control over it.

The allocation of the money and constitution of the Bosnian troops are the same in every particular as those for other bodies of infantry.

With the cost of recruiting, the pensions of the native soldiers, the expenses of the maintenance of the Bosnian troops amounted in 1907 to 5,400,000 francs (£225,000).

10. *Bosnian Gendarmerie.*—In addition to the Bosnian troops, the natives can also form part of a corps of local gendarmerie, organised in 1879. This corps, paid by the local budget, is composed of 52 officers and 2,360 men, of whom 26 are mounted.

VIII.

Conclusion.

Three years after having taken into her hands the administration of the country, Austria had then established obligatory military service for the natives.

In practice this obligation has been hedged round with many indulgencies: a very weak contingent at the beginning, increased little by little to the proportion of one recruit for 500 inhabitants —very numerous exemptions—postponement of service and substitution authorised—no military tax—scrupulous respect for religious rights, especially those of the Mahommedan soldiers.

For the Mussulman natives this obligation was no novelty, but the continuation of the same system carried out by the Turks in Bosnia since 1865. For the native Christians it was the simple transformation of the military tax under the Turks into personal service. No civil or political rights have been granted in return to either the one or the other.

This legislation, applied to a population of 1,700,000 inhabitants, has increased by more than 30,000 trained men, the military resources of Austria-Hungary at disposal for mobilisation.

The local conditions were, it is true, very favourable. If the Bosnians were of homogeneous race, long and ancient religious jealousies had created among them great dissensions and acute hatreds, which prevented them from combining closely

against the invader. If they, in 1878, struggled with a good deal of energy against the Austrian occupation, they were far from resisting as long as other Mussulmans have done to a Christian conquest.

On the other hand, for four centuries the Turks had effectively occupied Bosnia, and had given it an administrative and military organisation, which did not exist in all the countries brought under Ottoman rule.

The position of Austria in Bosnia was not so completely analogous to that of other European Powers, which had brought Mussulman countries under their rule.

It is not the less of interest to point out that almost as soon as she had occupied a region, a third of whose population was Mussulman, Austria had brought the natives to compulsory and personal service, in a very mild form it is true, and that after a very short agitation, this obligation has been accepted by all and given her, in case of war, an additional 30,000 infantry.

ANNEXE NO. 1.

Special Regulations Relating to the Mussulmans.[1]

Friday is granted as a day of rest to all soldiers of the Mahommedan religion; and in addition three days' holiday are allowed as the festivals of the Ramadan Bairam and the Courban Bairam. Nevertheless, as the laws of their religion contain no prohibition in this matter, the Mussulman soldiers will be bound to march, if ordered on military service on one of the days devoted to these great festivals.

The Mussulman soldiers have the right of cooking their food separately and of buying their provisions themselves. New camp-kettles are distributed to them, stamped with a distinguishing mark, and these kettles will be immediately replaced if they are contaminated by contact with any body proscribed by the Koran.

The supervision of their messes is limited to the verifying of the whole employment of the funds allotted; it must not be forgotten that the use of wine, of pork, or the meat of any animal which has not been blooded, is forbidden to Mahommedans.

The medical inspection of Mahommedan soldiers will be held in a separate apartment, where the man under examination will be alone with the doctor.

When the Mussulman soldiers are not on duty, every facility is to be given them—on Friday and during the two Bairam festivals—of performing the orisons ordained by the Koran. In places where there is no mosque, a special room in the barracks is to be assigned to them for this purpose.

A sufficient number of metal basins will be allowed them for their religious ablutions. At the funeral of Mussulman

[1] *Verordnungsblatt*, 4th November, 1881.

soldiers, there will be neither band, drum, nor bugle, as the Koran forbids any noisy manifestation at the funeral ceremonies.

When a corps is formed from troops recruited solely in Bosnia and Herzegovina, two Imaums will be allotted to them for their religious service, who will be on the same footing as second-class military chaplains. In the case where any one of these corps shall not have an Imaum, the soldiers will select one of themselves to take the place and recite the prayers aloud.

As soon as the first contingent of recruits shall have finished their military education, a certain number of Mussulman soldiers will be detached to the military hospitals, in order to go through a course as hospital attendants, so that later they may be able to look after their co-religionists.

ANNEXE 2.

Peace Effectives of the Bosnian Troops.

a. Regimental staff (including the staffs of 4 battalions).—1 colonel, 1 captain as adjutant to colonel, 4 battalion commanders, 5 doctors, 11 other officers, and 81 non-commissioned officers and men.

Staff of the battalion cadre at the Depôt.—4 officers, including the battalion commander and 8 non-commissioned officers and men.

Staff of the Chasseur battalion.—Seven officers, including the battalion commander and 11 non-commissioned officers and men.

Company cadre of the Depôt battalion.—4 officers and 19 non-commissioned officers and men.

Company cadre of the Chasseur Depôt.—2 officers and 8 non-commissioned officers and men.

NOTE.—The battalion commanders can be either colonels, lieut.-colonels, or majors.

b. Active Company of Infantry or Chasseurs.—The normal effective strength of the company consists of 1 captain, 3 subaltern officers, 1 cadet in lieu of an officer, 1 sergeant-major, 1 accountant non-commissioned officer, 2 sergeants, 6 corporals, 6 lance-corporals, 70 privates, 1 bugler, 1 drummer, and 4 orderlies, making a total of 4 officers and 93 non-commissioned officers and men. When raised to war footing, the number of officers remains the same, but there is an addition of 1 sergeant, 2 corporals, 3 lance-corporals, and 30 privates, making a total effective strength of 4 officers and 129 non-commissioned officers and men.

The cadet, sergeant-major, accountant non-commissioned officer, drummer, and orderlies are not armed with rifles.

c. Personnel in Charge of the Mobilisation Stores.—This *personnel* (1 captain, 1 first lieutenant, 1 accountant non-commissioned officer, 1 corporal, 2 orderlies for a regiment of infantry; 1 accountant non-commissioned officer, 1 corporal, 2

soldiers for the Chasseur battalion) makes part of the cadres units at the Depôt, and is included in their effective. Each regiment, as well as the battalion of Chasseurs, disposes, in addition, since 1900, of a "store officer," a subaltern officer of the *Armeestand* or of the *Ruhestand*.[1]

The mobilisation stores of the Bosnian troops are all outside Bosnia-Herzegovina territory:—

1st and 3rd Regiments at Buda-Pesth;
2nd Regiment at Grätz;
4th Regiment and Chasseur battalion at Vienna.

[1] The *Armeestand* is composed of officers, who, in consequence of physical unfitness, can no longer serve on the active list, and the *Ruhestand*, of officers on the retired list.

THE STATE OF BATTLE-SHIP CONSTRUCTION AT THE TIME OF THE LAUNCH OF THE FIRST GERMAN BATTLE-SHIP OF 18,000 TONS, ERSATZ *BAIERN*, 7TH MARCH, 1908.

Translated from the *Revue Maritime.*

THERE was published not long ago in *Schiffbau*, the leading German naval technical periodical, a summary of the battle-ships under construction at the time of the launch of the first German 18,000-ton ship. Although the summary contains nothing which cannot be found in different naval publications, yet the matter contained has been brought together in the article in question in a convenient form, and it has been thought, therefore, that it may be of interest to reproduce it, especially as there are some interesting comparisons drawn between German battle-ships and those of other countries:—

"On the 7th March the battle-ship *Nassau* (Ersatz *Baiern*) was launched from the Imperial Dockyard at Wilhelmshaven. She is the first ship of the new era of giant battle-ships carrying a powerful battery of guns of heavy calibre, that England, by the construction of the *Dreadnought*, has imposed on all nations which ought or which wish to have a powerful fleet. The *Dreadnought* belongs to the English naval programme of 1905-06, and was commenced at Portsmouth on the 2nd October, 1905, at a time when no State thought of laying down battle-ships of over 18,000 tons, carrying ten 12-inch guns. It is true that the Japanese battle-ship *Satsuma*, which is slightly larger, was commenced on the 15th May, 1905, at Yokosuka, but she only carries four 12-inch guns, with twelve 10-inch; she was launched on the 15th November, 1906, commenced her trials in November, 1907, and is now completed. The *Dreadnought* was launched on 10th February, 1906, and commissioned on 28th March, 1907. We cannot fix exactly the date of the commencement of the Ersatz *Baiern* and of the ship of the same type, the Ersatz *Sachsen*, which is to be launched next (launched 1st July last), exact information on this point not having been published; but these ships belong to the programme of 1906-07, and were commenced some time in July, 1907. The month when the keels were laid down was only made known last month. Nevertheless, the Ersatz *Baiern* was constructed, relatively speaking, rapidly up to the time of her launching.

After the appearance of the *Dreadnought* several States set themselves to construct or to project ships as large and carrying as heavy an armament; but England alone has received orders from abroad for such battle-ships, three having been ordered for the Brazilian Government.[1] It has been reported that these ships will be purchased either by the United States or England; but in any case, they are, according to the contract, to be ready for sea during 1909. At this date England will have ready three other ships of this class, the *Bellerophon*, *Temeraire*, and *Superb*, all three launched in 1907, and the three somewhat smaller so-called armoured cruisers, *Indomitable*, *Invincible*, and *Inflexible*, which carry eight 12-inch guns, giving her seven, and quite possibly ten of these new powerful ships, while Germany will have two, the Ersatz *Baiern* and Ersatz *Sachsen*, ready for sea.[2]

France, under her 1906-07 programme, is constructing six large 18,000-ton battle-ships, the *Danton*, *Mirabeau*, *Vergniaud*, *Condorcet*, *Diderot*, and *Voltaire*, but their construction has been delayed. The slip at Brest, on which the *Danton* has been laid down, was not ready until the beginning of 1908; the *Mirabeau*, at Lorient, had to wait to be laid down until after the launch of the *Waldeck-Rousseau*, at the beginning of March, 1908. These two ships, constructed in the Government Dockyards, are to be completed in 1910. The four others are being built in private yards, and are to be delivered in April, 1911. In 1909 none of these ships will be ready for sea.

In the United States, according to the programme of 1906-07, two large ships of 20,321 tons, the *North Dakota* and *Delaware*, are being constructed, the keels of which were laid down in October and November, 1907, respectively. On the 1st April, 1908, the *Delaware* had been advanced 12.6 per cent. in her construction, and the *North Dakota* 21.4 per cent.[3] These ships will carry ten 12-inch guns, and will probably be completed in 1910.

Russia has commenced at the Baltic Yard, on the slip left vacant by the launch of the *Imperator Pavel I.*, on the 7th September, 1907, the construction of a battle-ship of 20,000 tons.

Nothing is known with any certainty of the new battle-ships under construction for Japan in the Imperial Dockyards at Yokosuka and Kuri. Little as other countries have succeeded in surrounding their new ships in a veil of secrecy, Japan has at least done so with remarkable success. Outside certain circles

[1] The first of the three, the *Minas Geraes*, was launched from the Elswick Yard on the 10th September last.—*Trans.*

[2] Another ship of the same type, the *Rheinland*, was launched on 26th September last.—*Trans.*

[3] The *North Dakota* has since been launched on 10th November, 1908. —*Trans.*

in England interested in their construction, scarcely anything precise has been allowed to leak out about these ships.

Italy, again, has made at Castellamare all the preparations for laying down a ship of 19,000 tons.

With the exception of England and Brazil, Germany is in advance of all other countries in the construction of her large ships.

But this agreeable reflection is considerably lessened by the fact that our ten next strongest battle-ships of the *Deutschland* and *Braunschweig* classes are only of 13,200 tons displacement, and only carry four 11-inch with fourteen 6.7-inch Q.F. guns.

The 11-inch guns, like the 7.6-inch, are 40 calibres long, and even the *Schlesien* and *Schleswig-Holstein*, the latest of the class, only carry this armament, which seems very light compared to that of foreign ships. Thus of the ten last English battle-ships constructed before the *Dreadnought*, the eight of the *King Edward VII.* class carry four 40-calibre 12-inch guns and four 46.6-calibre 9.2-inch guns, while the two last ones, the *Agamemnon* and *Lord Nelson*, carry four 45-calibre 12-inch and six 46.6-calibre 9.2-inch guns. The superiority of these ships, then, from the point of view of armament, is a matter of great importance, for it is due to the lessons of the battle of Tsushima that so much importance is attached to superiority in guns of heavy calibre; the *Agamemnon*, *Lord Nelson*, and, above all, the *Dreadnought*, are the result of these considerations.

The new Japanese battle-ships, the *Satsuma*, already mentioned, and the *Aki*, a similar ship, launched at Kure on the 15th April, 1907, of 19,000 tons and 19,800 tons respectively, carry four 45-calibre 12-inch guns and twelve 48.6-calibre 10-inch.

The Vickers-Maxim 45-calibre 10-inch guns have a muzzle energy of 28,225 f.t., with a rate of fire of 3 rounds a minute; the Elswick 50-calibre 10-inch guns have a muzzle energy of 33,315 f.t., with a rate of fire of 2 rounds a minute. It is these guns we have to concern ourselves about. The German Krupp 40-calibre 11-inch guns fire 1 round a minute, and have a muzzle energy of 33,561 f.t. Thus the Japanese 10-inch guns, manufactured at Elswick, are alone two times superior to the 11-inch guns of the German ships, without counting in the 12-inch guns.

Of the fifteen U.S. battle-ships which precede the *Delaware* and *North Dakota*, the five of the *Georgia* type of 16,300 tons carry four 40-calibre 12-inch and eight 45-calibre 8-inch guns. The superiority of the gun armament of these ships over that of the German vessels is unquestionable. They were all launched in 1904. The six ships of the *Connecticut* type which followed them have a displacement of 17,000 tons, and carry as their armament four 45-calibre 12-inch guns and the same number and type of 8-inch guns as also have the *Mississippi* and *Idaho*, two ships of only 14,700 tons. Next come the *North Carolina* and *Michigan*, with a displacement of 17,900 tons, which have not yet been launched, but which on the 1st January

had been advanced 33.8 and 37.9 per cent. respectively; their armament is to consist of eight 12-inch guns, but whether of 40- or 45-calibre length is not yet settled.

The four recently completed French battle-ships of the *Démocratie* type of 14,870 tons displacement carry four 40-calibre 12-inch guns and ten 50-calibre 7.6-inch; they may fairly be considered superior in gun power to the ten most recent German battle-ships, as well as are the two earlier ships of the same displacement, the *Patrie* and *République*, which carry eighteen 40-calibre 6.4-inch guns as their secondary armament, even admitting that the Krupp *matériel* is superior to that turned out at the Ruelle Factory.

The six latest Italian battle-ships are equally superior from the point of view of their armament to the German ships; of these six ships, the *Roma* was launched on 16th April, 1907, but is not yet ready for sea. The *Benedetto-Brin* and the *Regina-Margherita*, of 13,430 tons, carry four 12-inch and four 8-inch guns, all of 40 calibres; the four others carry two 12-inch and twelve 8-inch guns. All the guns were manufactured at the Armstrong Works at Pozzioli.

Since England considered it necessary to envelop the construction of the *Dreadnought*, the *Invincible*, etc., in a veil of secrecy, other countries have more or less adopted this new policy.

All the new English and French battle-ships are to be furnished with turbines; on the other hand, the three Brazilian ships will have engines of the old reciprocating type. The turbines of the three English ships of the *Bellerophon* type are to develop 23,000-I.H.P.; those of the *Superb* have been constructed by the Wallsend Co.; the others by Vickers, at Barrow; the *Superb* and *Bellerophon* are fitted with Babcock-Wilcox water-tube boilers, the *Temeraire* with Yarrow. These ships have a displacement of 18,600 tons, are 490 feet long, a beam of 82 feet, with a draught of 27 feet. The armament is similar to that of the *Dreadnought*, viz., ten 45-calibre 12-inch guns, but they carry twenty 4-inch guns as anti-torpedo weapons in place of the twenty-seven 12-pounders of the *Dreadnought*. The belt armour is 11 inches, tapering to 6, as also are the redoubt and conning-tower, the barbettes being 12-inch. The ships have two tripod masts, but this method of construction may well soon disappear, as a projectile is more likely to knock away one of the three legs than one simple mast, which can be made very slight, as it has not to carry any heavy weights. If one of the three legs were shot away, the other two, with all they may be carrying, would also go. The *Agamemnon* and the *Lord Nelson* also have tripod masts; but if these have been supplied to several ships it is in order that the *Dreadnought* may not appear to be the only one so fitted, which would show to the whole world the faultiness of this installation.

In regard to the three ships of the *St. Vincent* class, the displacement has been raised to 19,250 tons, with a length of

500 feet, a beam of 84 feet, and a draught of 27 feet, the I.H.P. of their turbine engines has been raised to 24,500, giving a speed of 21 knots. Their armament is the same as in the others of the type, but the 12-inch guns will be 50 calibres in length instead of 45.

The trials of the three ships of the *Invincible* class (a fourth is to be built) have been awaited with much interest. These ships have a displacement of 17,250 tons, are 530 feet in length, with a beam of 78 feet 6 inches, and a draught of 26 feet. Their Parsons' turbine engines, which work four screw shafts with four screws, are to develop 41,000-I.H.P., and give a speed of 25 knots,[1] their water tube boilers being of the Babcock-Wilcox type. Their armour belt, which extends the whole length of the ship, is 7 inches in thickness, tapering to 4 inches, and they are fitted with two rudders.

The three Brazilian battle-ships are reported to have a displacement of 19,250 tons, to be 510 feet long, with a beam of 85 feet and a draught of 25 feet; the engines to develop 26,000-I.H.P., giving a speed of from 20 to 21 knots. The armament, it is said in some quarters, will consist of ten 13.5-inch guns, all supplied by the Elswick firm, the heaviest guns yet carried by modern ships. The five turrets are on the keel-line, the three centre ones being higher than the two others, which will allow the whole ten to fire on the broadside, with a bow and stern fire of four. The coal supply will be 2,000 tons.

The two U.S. battle-ships are to have a displacement of 20,000 tons, with a length of 510 feet, a beam of 85 feet 3 inches, and a draught of 27 feet. Their reciprocating engines are to develop 25,000-I.H.P., giving a speed of 21 knots. The armament is to consist of ten 12-inch and fourteen 5-inch guns, the axes of the 12-inch guns being from 22 to 33 feet above the water-line. Protection being afforded by a water-line belt 8 feet wide and 11 inches thick, with an upper belt 7 feet 3 inches wide and 10 inches thick, the secondary battery being protected by 5-inch armour and the turrets by 11-inch. The coal supply is calculated at 2,500 tons.

As we have already said not much is known about the new Japanese battle-ships, but according to the programme, four of 19,500 tons, with engines developing 26,000-I.H.P., giving a speed of 20 knots, are to be constructed, with four 18,500-ton armoured cruisers, with a speed of 25 knots. It is not, however, probable that the two ships which are following the *Satsuma* and *Aki* are included in these four. It is also known that during the next seven years two other battle-ships are to be built to take the place of older ships. It seems to be generally admitted, however, that the new ships are to carry a powerful battery of medium guns, in addition to numerous 4.7-inch for use against torpedo-boats, which, in spite of their war ex-

[1] This speed has been exceeded in the trials since carried out by two knots.—*Trans.*

periences, the Japanese do not seem inclined to give up, thus placing themselves in opposition to almost all the other Powers.

The Italian battle-ship *A*, building at Castellamare, is to be a ship of 19,000 tons displacement, 500 feet long, 68 feet 8 inches beam, and to have turbine engines developing 30,000-I.H.P., to give a speed of 22.5 knots, and will cost 50 million lire (£1,979,166).

The six new battle-ships which, as we have already stated, the French are constructing, will be vessels of 18,320 tons, 505 feet long, a beam of 83 feet 6 inches, with a draught of 27 feet 6 inches. Their turbine engines are to develop 22,500-I.H.P., to give a speed of 19 knots; they will have 8 screws with a diameter of 8 feet 8 inches, arranged on four shafts. The armament is to consist of four 50-calibre 12-inch guns, of a new model, twelve 50-calibre 9.4-inch guns, sixteen 12-pounders, and eight 3-pounder guns, and two submerged tubes for 23-inch torpedoes of a new type. Another group of six ships of 21,000 tons displacement are further to be laid down, but it is as yet uncertain whether they will be commenced in 1909 or 1910.

With regard to the new German battle-ships now under construction, very few details have been allowed by the Admiralty to leak out, but according to the semi-official *Marine Rundschau* they are vessels with a displacement of 18,000 tons. Three other ships of the same type, the Ersatz *Oldenburg*, Ersatz *Siegfried*, and Ersatz *Beowulf*, as well as the first-class armoured cruiser *G*, which, like *E* and *F*, already building, will have the armament of a battle-ship, are to be laid down this year (1908). The armoured cruiser *E*, which is under construction at the Imperial Dockyard, Kiel (launched 11th April, and named the *Blücher*), has a displacement of 15,000 tons; *F*, which is being built by Blohm & Voss of Hamburg, is to be fitted with Parsons turbines, and as she is to cost 36 million marks (£1,800,000), should be a very large and powerful vessel. It is a question if we are wise in following the example of the English in concealing the characteristics and armaments of our new ships. Foreign Navies interested in them possess all the details, and one may well ask, therefore, if any real purpose is served by withholding the information from the public. It is only thanks to the interest shown in naval matters by the public that the Minister of Marine has been provided with the means necessary for realising his programme.

Towards the end, then, of 1910, we shall have ready four of these ships, and we can employ as first-class ships the ten battle-ships of the *Deutschland* and *Braunschweig* classes. The ten ships of the *Kaiser* and *Wittelsbach* types, with their four 9.4-inch guns and fourteen 5.9-inch, are hardly worthy of the name. France will have in 1910 the six ships of the *Danton* class, the equals of our four new ships, with the six of the *République* class, and the *Suffren* and *Bouvet*, all equal, if not

superior, to our ten German ships. She will also have in addition seven other useful ships carrying 40-calibre 12-inch and 40-calibre 10.8-inch guns. England will have eight *Dreadnoughts*, three *Inflexibles*, and eight of the *King Edward VII.* class, with the *Lord Nelson* and *Agamemnon*, all equal to our four ships, and she can also dispose of some thirty ships which in England are considered superior to our most recently completed ten battle-ships. And to these forty-eight vessels might be added, under certain circumstances, the three Brazilian ships. Japan, in 1910, will be able to dispose of four battle-ships equal to our four, as well as two superior to the ten of our own fleet already mentioned, viz., the *Katori* and *Kashima*, ships of 16,500 tons, carrying four 12-inch and four 10-inch guns, besides twelve 6-inch; and further of another six, equal to our ten, and not taking into account the *Poltava*, *Peresviet*, and *Pobieda*, captured from the Russians. The United States in 1910 will have four battle-ships equal to our four, thirteen inferior to them, but which in any case are superior to our *Deutschlands* and *Braunschweigs*, and eight others at least their equal. Italy will have one ship of the same class as our four, two equal to our ten, and four a little inferior to those ships; while Russia may possibly have in her Baltic Fleet three ships equal to our four and two slightly inferior to our ten.

Thus England will dispose of 47 first-class battle-ships, Germany of 14, France of 14, Japan of 12, Italy of 7, Russia of 5, and the United States of 25. It must also be noted that in 1910, while the German Navy will only dispose of 10 armoured cruisers, England will dispose of 35, France of 19 (counting the oldest, the *Polthuan*, built in 1895), the United States 13 (including the *Brooklyn*, of 1895, and the *New York*, 1891), Japan 14, of which 4 carry a modern battle-ship's armament of four 45-calibre 12-inch and twelve 6-inch guns. In view of these figures, it is scarcely a question yet of Germany exceeding the United States or France in battle-ships, while to equal or exceed England is not to be spoken of."

NAVAL NOTES.

Home. The following are the principal appointments which have been made: Rear-Admirals—The Hon. S. C. J. Colville, C.V.O., C.B., to Command First Cruiser Squadron; A. M. Farquhar, C.V.O., to Command Fourth Cruiser Squadron; E. J. Slade, M.V.O., to be Commander-in-Chief in the East Indies; The Hon. A. E. Bethell, C.M.G., to be Director of Naval Intelligence; T. H. Jerram to be Chief of the Staff in Home Fleet for ships and vessels with nucleus crews. Captains—R. H. Peirse, M.V.O., to be Inspector of Target Practice; E. C. Villiers to "Charybdis"; F. C. Ogilvy to "Natal"; R. M. Harbord to "Magnificent"; E. G. Barton to "Black Prince"; E. H. Mowbray to Royal Naval College, Greenwich; C. L. Vaughan-Lee to "Ganges"; E. S. Alexander-Sinclair, M.V.O., to "Sapphire" and command of destroyers in Channel Fleet; H. M. Doughty to "Leviathan"; R. Webb to "Amethyst"; E. S. Fitzherbert to "Bedford"; C. S. Hickley to "Cochrane"; H. W. Savory, M.V.O., to "Prince of Wales"; H. D. Wilkin, D.S.O., to "Hawke." Commanders—F. C. Pasco to "Fantome"; R. W. Johnson to "Vulcan"; A. P. Addison to "Forth"; W. R. Napier to "Mercury."

Admiral Sir D. Hort Bosanquet, G.C.V.O., K.C.B., whose last appointment was Commander-in-Chief at Portsmouth, has been appointed Governor of South Australia. Sir D. Bosanquet will be the third Admiral holding an appointment as Governor in the Commonwealth of Australia, the other two being Admiral Sir G. D. Bedford, G.C.B., who is Governor of Western Australia, and Admiral Sir Harry H. Rawson, G.C.B., who is Governor of New South Wales.

Rear-Admiral D. A. Gamble has been selected by the Admiralty to fill the appointment of Naval Adviser to the Turkish Government, application having been made by that Government to ours for an officer to fill the appointment. The last officer who held such an appointment with the official sanction of our Government was Rear-Admiral Sir Adolphus Slade, K.C.B., who was succeeded on his retirement from the post in 1868 by Captain the Hon. A. Hobart, better known as Hobart Pasha. This officer obtained the appointment through the interest of his family, as was stated at the time, who were closely connected with the Ottoman Bank, but the Admiralty, who had their own candidate, were much displeased at his accepting the appointment without their permission, and his name, although he was afterwards reinstated, was for the time removed from the list.

Rear-Admiral C. Burney hoisted his flag on board the *Leviathan* at Plymouth on the 4th inst. as Rear-Admiral commanding Devonport division of Home Fleet, in succession to Rear-Admiral J. Denison; Rear-Admiral C. J. Briggs hoisted his flag at Chatham on board the *Lord Nelson* on the 4th inst. as Rear-Admiral commanding the Nore division of the Home Fleet, in succession to Rear-Admiral the Hon. S. C. J. Colville, C.V.O., C.B.

Trials of the "Invincible."—The new first-class turbine armoured cruiser *Invincible* completed her steam trials last November, but very little information has been allowed to leak out about them. It was reported on what seems good authority that at her thirty hours' trial at

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seven-tenths power, a speed of 25 knots was realised, and that at the eight hours' full-speed trial she averaged 28 knots. Her designed speed is 25 knots and her stipulated H.P. 41,000, but it is stated she actually developed 46,000-I.H.P.

New Ships.—The new first-class battle-ship to be laid down at Portsmouth this month is to be named the *Neptune*. It is reported that she will be 10 feet longer and have 2 feet more beam than her predecessors, so that she will be 510 feet long, with a beam of 86 feet; her displacement will be 20,250 tons, and her turbine engines are to develop 25,000-I.H.P.

The new first-class cruiser to be laid down at Devonport is to be known as the *Indefatigable*, and is to be commenced in February. She is to be an improved *Indomitable*, and the following are believed to be her approximate dimensions :—

—	*Indomitable.*	*Indefatigable.*
Length	530 feet.	570 feet,
Beam	78 feet 6 inches.	79 to 80 feet.
Displacement	17,250 tons.	18,000 tons.
Horse power	41,000	45,000.
Speed	25 knots.	28 knots.

In view of the great improvement of the new ship over her three predecessors, it will probably be found that two more of the same type will in due course be built, so as to have a group of three of these ships.

The largest cruiser at present building abroad is the German "F," reported to be of 18,700 tons displacement, to carry an armament of twelve 11-inch guns, with turbine engines to develop 45,000-I.H.P.

Naval Casualties, 1901-07.—A return specifying, for each year from 1901 to 1907, both inclusive, every accident and casualty occurring to any of His Majesty's ships or vessels during manœuvres or tactical exercises ordered by the Admiralty, under the following heads: date of casualty, station, ship, number of tonnage, complement, nature of casualty, and number of lives lost, has been issued as a Parliamentary paper [282]. The total number of casualties shown in the return is 75, and of these, two were recorded in 1901, six in 1902, 13 in 1903, 20 in 1904, none in 1905, 15 in 1906, and 19 in 1907. Of the total number, 23 were mishaps to machinery, mostly of a minor character; one only, the crown of the furnace in the *Blake* conning tower, resulting in three men losing their lives. There were 27 collisions, but in many of these no serious injury was sustained, and in only one was there loss of life; a man was drowned through the collision between torpedo-boat destroyers *Decoy* and *Arien*, off the Scilly Islands, in 1904. The only other cases in which lives were lost occurred in 1904, by the capsizing of the dinghies of the *Syren* and *Antelope*. Ten vessels touched the ground, but the damages done were, as a rule, very slight. One vessel, the *Viper*, torpedo-boat destroyer was wrecked during a fog, between the Casquets and Alderney, but no lives were lost. The other mishaps recorded were due to such

Home. occurrences as fouling buoys or piers, accidents to ground tackle or boat hoists, net defence taking charge, and derricks carrying away. In every case the vessel had her full complement on board. The return does not show the number of vessels which were carrying out manœuvres or tactical exercises at the time these casualties occurred, but about 12 per cent. appear to have taken place in the larger ships.

France. The following are the principal promotions and appointments which have been made: Vice-Admirals—M. P. De Fauque de Jonquierès to be Commander-in-Chief of the Mediterranean Fleet; A. E. Bouè le Lapeyrère to be Member of the Superior Council of the Navy and Inspector-General of the Torpedo and Submarine Flotillas and Fixed Defences. Rear-Admiral — P. Auvert to Command of 2nd Division of the Squadron of the North. Capitaines de Vaisseau—A. M. D'Espinay Saint Luc to "Amiral Gueydon"; H. V. Barbin to "Dupetit-Thouars"; E. M. Amelot to "Jules Michelet"; M. G. De Ramey de Sugny to "Suffren." Capitaines de Frégate—G. H. André to "Cosmao"; B. Mauros to "Dard," and Command of 5th Torpedo Flotilla of the Mediterranean; A. De la Taste to "Gironde"; H. Salaun to "Obusier," and Command of Destroyer Flotilla attached to Squadron of the North.

Vice-Admiral Germinet's Supersession.—Vice-Admiral Germinet has been relieved of his command of the Mediterranean Fleet, and his flag was struck at sunset on the 7th ult. on board his flag-ship the *Patrie*. The Admiral was summoned to Paris on the 3rd ult. by the Minister of Marine to give explanations as to certain statements which had appeared in the Press, and which it was stated were made by his authority, as to various deficiencies in the fleet under his orders, and in particular in regard to the dangerous shortness of ammunition for the Navy which existed and which had existed for some years past, and although the true state of affairs was well known at the Ministry of Marine, no steps had been taken to remedy it. Explanations were also called for from the Admiral in regard to the circumstances under which the armoured cruiser *Condé* had grounded off Ajaccio during the recent manœuvres. Vice-Admiral Germinet had interviews with both M. Picard, the Minister of Marine, and M. Clemenceau, the Premier, but his explanations were not considered satisfactory, and as the result it was decided to relieve him of his command, an order to that effect being signed by the President on the 5th ult.

The incident has naturally caused a great sensation, as the facts as stated by the Admiral are admitted to be perfectly true, especially as regards the serious depletion of the reserves of ammunition. The incident was the subject of an animated debate in the Chamber, and in view of Admiral Germinet's high professional reputation and the admittedly unsatisfactory state of things existing in the Navy, it seemed at one time as if a hostile vote would be recorded against the Government, but this was avoided on a promise being made to lay before Parliament at an early date a complete *exposé* of the state of the Navy, as well as a carefully prepared plan of reorganisation and satisfactory proposals for a new building programme.

France.

The withdrawal of Admiral Germinet from the command of the Mediterranean Fleet is much regretted, and is felt as a distinct loss in the Service, for he is a very able officer, a good tactician and disciplinarian, and at the same time extremely popular with all ranks. He was appointed to the command of the Mediterranean Fleet, in succession to Vice-Admiral Fournier, on the 5th November, 1907, and during the thirteen months he has held the command has admittedly brought the fleet up to a very high standard of efficiency.

The New Commander-in-Chief of the Mediterranean Fleet.—Vice-Admiral De Fauque de Jonquierès, who has been selected to succeed Admiral Germinet in command of the Mediterranean Fleet, is, although he is well up on the list of Vice-Admirals, the youngest but one on the list, and is in his 59th year. He comes from a well-known naval family; his father was an officer of high distinction, who held various important appointments. The new Commander-in-Chief entered the Service in 1867, and as a lieutenant, when in command of the gun-boat *Aspic*, much distinguished himself at the battle of Foochow on 4th August, 1884, where he led the gun-boat division, for which service he was promoted to capitaine de frégate. As commander of the *Inconstant* in 1891 he took a leading part in the suppression of the disturbances in the basin of the Yangtse-Kiang, for his services on which occasion he received a warm letter of thanks from Sir F. Richards, at that time the English Commander-in-Chief in China. He was promoted to Captain in 1892, and ten years later became a rear-admiral. After serving in the Ministry of Marine he was appointed Second-in-Command of the China Squadron, where he displayed great tact in dealing with Admiral Rodjestvenski, during the sojourn of that officer with his fleet off the coast of Cochin-China. On his return to France he was nominated Naval Attaché at Berlin, where he soon made himself extremely popular, and won the regard of the Emperor William in a remarkable way. Promoted to Vice-Admiral in July, 1907, he was almost immediately afterwards, on the death of Vice-Admiral Melchior, appointed Member of the Superior Council of the Navy and Inspector-General of Torpedo and Submarine Flotillas. His selection for the Mediterranean Command has met with universal approval in the Service, for his reputation is as high as that of his predecessor, and he commands the universal confidence of officers and men alike.

French Armoured Cruisers.—In a recent number of *La Vie Maritime*, the editor, M. Charles Bos, who has twice served as Reporter of the Naval Estimates to the Chamber of Deputies, and is a recognised expert writer on naval affairs, has been criticising somewhat unfavourably the French armoured cruisers. According to the writer, the eleven old armoured cruisers *Jeanne d'Arc*, *Amiral Gueydon*, *Montcalm*, *Dupetit Thouars*, *Gloire*, *Marseillaise*, *Condé*, *Amiral Aube*, *Dupleix*, *Desaix*, and *Kléber* are unsatisfactory, both in regard to armament and speed. All these ships, according to their designs, should have a speed of 21 knots, the *Jeanne d'Arc* having been intended for 23. This latter ship, in spite of numerous alterations, has never exceeded 21·7, while the remainder even on their trial trips barely made 21, a speed which on service sank to

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18 and even as low as 16, if there was anything of a sea on. In bad weather these ships are always coming to grief, and what they have cost in repairs must be terrific.

Yet in these eight armoured cruisers, for we do not count the *Dupleix* and her two sisters—vessels of only 7,700 tons—armament, protection, and strength of hull, have all been largely sacrificed to obtain a speed, which has been unobtainable, and the vessels will not stand comparison with similar ships in foreign navies. Including repairs, each of these ships must have cost between 28 and 30 millions of francs (£1,120,000—£1,200,000).

The new large armoured cruisers *Léon Gambetta*, *Victor Hugo*, *Jules Ferry*, *Jules Michelet*, and *Ernest Renan*, are, however, much better; but even these are only on a par with the English *Drake* class, and are much inferior to the later ships of the *Warrior* and *Minotaur* classes—to say nothing of the *Indomitable* and her sisters—and to the German *Scharnhorst*. Moreover, these ships have cost more than any battle-ship anterior to the *Suffren*, including that ship, and not very much less than the battle-ships of the *Patrie* class, while they have far less protection and far weaker armaments, both of which have been sacrificed to speed.

In order to have these fast, but weakly-armed and badly-protected ships, at a time when we only possess a small number of battle-ships, we have expended more than 520 millions of francs (£20,800,000); for ships, in fact, which could only in the last extremity be placed in the battle line, and which nobody knows how rightly to use, we have thrown into the sea something like half-a-milliard francs (£20,000,000). For the same money we could have had two fine squadrons of battle-ships, analogous to the six of the *Patrie* class, at a cost of about 42 million francs (£1,680,000) each, although this cost might have been decreased by two or three millions (£80,000—£120,000) if they had been built in groups of three at four different dockyards. The difference in cost between these twelve battle-ships and the 520 millions devoted to the armoured cruisers—including the *Sully*, which has been lost—would have enabled half a score of scouts of high speed to have been added to the fleet, a class of vessel of which we have none.

There is not a single naval officer who would hesitate to say that our naval forces would be a great deal more formidable if they were composed of 18 first-class battle-ships of the *Patrie* class, and ten fast scouts, than with the six *Patries*, and the armoured cruisers of which they can dispose at the present time.

As a matter of fact we were right when we wrote some time back that the armoured cruiser is not a battle-ship, and that sooner or later it would be one and the same thing with the battle-ship, to which greater displacement and higher speed has been given. The English *Invincible* and the Japanese *Tsukuba* show how rapidly the fusion of the two types is proceeding, for these ships by their armament are really extremely fast battle-ships.—*Précis* from *La Vie Maritime*.

The Naval Situation, by M. Rousseau. Letter No. 7.—In this study of the naval situation we have endeavoured to describe the evolution of the modern fleet and its causes. The disappearance at the beginning of the 18th century of the Navies of Spain and Holland left surviving

France. those of England and France, which for nearly a century held the undisputed supremacy of the sea. Of these two Navies, one, that of France, has dropped out of the race, and has given place to younger Navies; the other, that of England, has made during the last decade of the last century and the first of the present a most admirable advance; but, allowing herself to be surprised by the rapidity of this evolution and hypnotised by the Navy of her nearest neighbour (for notwithstanding all, England is haunted by the fear of invasion), she failed to foresee the consequences of the Russo-Japanese war or those brought about by the invention of the *Dreadnought*.

The complete victory of Japan has ruined the prestige of the European in Asia, and has, so to speak, created an England in the Far East against the England in Europe, and when the British Admiralty constructed the *Dreadnought*, though her plans were kept a secret, Parliament was nevertheless informed that it was intended to reduce the number of naval bases abroad, which was a sufficient indication of the nature of the new vessel.

Now that the naval supremacy of England is no longer absolute, the ambitions of other countries are being excited. In the few past years the United States have constructed a fleet which is at present the second most powerful fleet (though before very long it will be surpassed by Germany), and which is now engaged in advertising its power by a cruise round the world. It has been said that the American people are slow of speech but strike hard; certainly in this case they are not conspicuous by their silence, and one might even call them talkative did not the word "bluff" occur in the American language. They understand better than anyone how to give a special significance to this cruise round the world. The Australian Prime Minister asked that Admiral Evans's squadron might visit the Australian ports, and this request, if not suggested, was at once agreed to with enthusiasm. The English Government now solicits a visit from this same squadron, and the reply is that to visit England would delay the programme, though the Australian visit meant a detour of 4,000 to 5,000 miles, while the visit to England would take them little more than half that distance out of their way. Is it not evident from this that the American Government thinks more of establishing cordial relations with the Colony than with the mother country? The Colony being situated in that American lake, the Pacific Ocean, and the ties between it and the mother country being only those of a respectful daughter arrived at her majority.

And while England is suffering this little annoyance from one young Navy, another young Navy is avowedly endeavouring to take her place. Germany for twenty years past has been fighting her with energy in the commercial field, and gaining ground every day. From a military point of view it is Germany that is carrying out Lord Cawdor's programme of laying down four new battle-ships every year, while England is not building more than three per year.

In whatever direction we turn we notice how much the diminution of British power reduces the chances of peace. In the Pacific, where, according to Lord Esher, England has abandoned her supremacy, a conflict of interests has arisen between the United States and Japan,

France. which perhaps is not yet altogether smoothed away. In commercial matters the struggle is becoming keener and the competition more bitter, and the mercantile flag of England is disappearing from these waters to the great prejudice of English shipowners and merchants.

In the Indian Ocean English commerce is also being attacked, and the northern frontiers of England's most important possession are not secure, while signs of revolt are becoming apparent throughout all India.

In the Atlantic Ocean the situation for the moment is not disturbed, but on one of the dependent seas England finds herself face to face with a Power which is becoming stronger day by day, and each day more menacing. Everywhere the elements of conflict appear to exist. Can we expect that everywhere the solution will be a pacific one? We must unfortunately be prepared for the worst, for interests clash too much for us to hope that these matters will be peacefully arranged. Where will this war cloud burst? Who can say? It may safely be said, however, that when it does, we cannot remain indifferent to it. By our alliances, our *entente*, our treaties, we are everywhere in contact with the interested parties, and we cannot preserve our independence or our liberty of action unless we are strong enough to make them respected; in the same way we cannot benefit by our alliances unless we bring to our allies advantages comparable with those which we expect from them. We are situated between the adversaries, and we must not allow our territories to become the field of battle, and to effect this we must be strong. Many people think that we need not go to war unless we like, but this is absurd, and it is impossible to avoid being drawn into the conflict in certain circumstances. We in France have been far too long ready to accord every virtue to defensive tactics, which entail all the risks of losing without any of the chances of winning, and have buried millions in *matériel* which may be now looked on as so much bankrupt stock—bankrupt because such was our blindness that it has not been kept up to date or followed the progress made by our rivals. It is to-day no longer able to fulfil its object, and three or four years hence will only be fit for the scrap-heap.

In all seriousness our Navy, in which everything has been sacrificed to the defensive, only exists at all by favour of the few offensive vessels which the too rare prudence and enlightenment of some of our former Ministers of Marine has endowed it, by doing which they have deserved well of the country; but of vessels of real offensive power we do not possess sufficient to make up a squadron equal to half the fleet of Admiral Evans. We have six battle-ships building, but they do not fill the deficiency either as regards the United States or Germany; we must have others with the least possible delay.

Let us not forget that France has the largest national Budget of the whole world, and that this Budget, which is the guarantee of our liberty, of our social institutions, of the protection of our citizens, may excite the covetousness of others. It is only a madman that leaves the key in the door of his strong-room, thereby inviting robbery, and mad is the people that exposes its riches to the public gaze without taking the necessary precautions for protection.—*Le Temps.*

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Admiral Converse Defends the U.S. Navy.—The special report of Rear-Admiral George A. Converse, retired, President of the Board on Construction of the Navy, on the methods of designing and the structural efficiency of the American battle-ships which was recently made public, defends the Navy vigorously against the recent magazine and newspaper criticisms. Admiral Converse makes no attempt to answer the criticisms of the bureau system, confining himself to matters pertaining to the design and structure and handling of the American war vessels. His report, which is written in a free and easy style, in which he has avoided the use of technical language, comprises ninety typewritten pages and contains about 25,000 words. The recent criticisms of the Navy, Admiral Converse says, "would seem to have been prepared by persons whose knowledge of the subjects discussed was limited and incorrect." On the contrary, there is not a statement made by the Admiral that is not supported by proper evidence found in official and other reliable data. He shows how the critics, to obtain some minor advantages, would unknowingly and ignorantly strike at the very heart of battle-ship construction and undo in one moment what the Navy has by years of constant study built up. All the criticisms have come under his attention many times before, but he, as well as other eminent naval authorities in the United States, England and Japan, has not been swayed by these because of reasons to which years of thought have been devoted by naval authorities.

"To criticise," says Rear-Admiral Converse, "is human nature, and men interested in a subject or its development are generally much given to making suggestions or criticisms which, in their opinions, would be improvements. To a person, however, charged with the adoption of the changes suggested by the critics, and particularly so where such changes may seriously affect the public welfare and involve the expenditure of large sums of government money it is only natural that he having this great responsibility, should require that the advantages claimed for the alterations be satisfactorily proved before the time, labour and money necessary to carry out the suggested ideas be expended."

We shall, no doubt, find occasion for further extracts when we receive the complete report, which is now in the hands of the public printer. The report as a whole would fill several pages of this paper. Admiral Converse says: "It is not claimed that mistakes have not been made or that our ships are without faults; but in view of the then state of the art of battle-ship building, this fact is not to be wondered at. It is remarkable that the mistakes were so few that none was really serious. In this respect our record will compare most favourably with that of foreign services."

Most of the charges made by certain critics on the efficacy of our battle-ship construction are met and answered in brief.

Drill—Torpedo-boats and Submarines.

As to battle drill, attention is called to the endeavours for some years past to solve practical problems of attack and defence of our coasts, in concert with the Naval War College and the Coast Artillery of the Army,

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including mine planting, picketing, protecting mine fields by guard ships, and many other details incident to war conditions, which are too numerous to mention.

Drills by divisions (four ships) and squadrons (eight ships) have been carried on whenever ships could be assembled for the purpose.

In the spring of 1903 it was practicable for the first time since the construction of the "new navy" to obtain a squadron of eight battle-ships —the least number necessary for properly performing squadron drills—and since then those eight battle-ships have been, so far as possible, kept together for drill purposes.

In the spring of 1907, by the completion of new vessels, for the first time it became possible to hold and carry out fleet tactics, which were begun in July and August last. In September it became necessary on account of target practice and needed repairs to separate the ships temporarily, and later on to fit them for their voyage to the Pacific coast.

Before the eight battleships were available (in the spring of 1903) fleet drills simulating war conditions were carried on with cruisers, gunboats, torpedo-boats and such other vessels as could be brought together and used, and frequently the necessary number of vessels for conducting operations were obtained by assigning steam launches, by doubling the distance between ships and supposing vessels in the intervening vacant spaces and in other similar ways.

It may be added that the squadrons of vessels taking part therein were commanded during the various years above referred to by Rear-Admirals Farquhar, Higginson, Sumner, Barker, Evans, Sands and Sigsbee, all of whom saw active service during the Civil War, and the commanding officers under them in almost all cases had similar experience during the war or in the war with Spain. It is only natural that such men as these, having gone through active hostilities themselves, would conduct battle drills with the ships under their command on the practical lines which their own experience and study had taught them. Considering the force available, it was not possible in peace times to have had more effective or realistic battle drills than such as these.

In addition to the foregoing exercises and operations are those conducted during the last several years by the three torpedo flotillas and the submarines, which have acted at times independently of the battle-ships and at other times in conjunction therewith.

Whether considered of any merit or not by amateur critics in our own country, foreign navies and foreign publications of acknowledged professional standing have not failed to note and pay attention to these exercises. The assertion that no navy in the world has had so little battle drill as ours is, in view of the actual facts of the case, very erroneous and misleading. In regard to the assertion that since 1898 only ten days of actual battle manœuvres have been carried out in the Navy, attention is invited to the principal squadron and fleet exercises since 1900, which were carried out under conditions simulating, as far as practicable, those to be expected and anticipated to occur in actual war, and were consequently battle manœuvres and drills in all respects, based upon carefully studied plans

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of what an enemy might attempt and how best such attacks might be met and repulsed.

Now that we have an assured fleet of sixteen battle-ships, consisting of two squadrons of eight vessels each, it will be possible to carry out practically, systematically and continuously schemes of fleet tactics and naval operations, but it is necessary that every effort be made to keep not less than this number of vessels together at all times, if that state of efficiency which our Navy is now rapidly tending toward and which the people of our country have a right to expect is to be maintained and fostered.

The Question of Freeboard.

As to low freeboard, we are told that the *Indiana* and *Kearsarge* classes are too low forward for efficient fighting at sea in fairly heavy weather, but the remainder of our battle-ships could without doubt give a good account of themselves in a fight at sea in any weather in which it is at all likely for fleets to engage. Our later designs of ships are fully the equal in regard to desirable or effective freeboard of foreign vessels.

The following table is given to show how far from the truth is the statement that "all modern battle-ships in foreign navies have forward decks from about twenty-two to twenty-eight feet above the water" :—

Name of Vessels.	Nation.	Number of Vessels Completed.	Height of Forward Deck.	
Class.			ft.	in.
Dreadnought	British	1	28	0
King Edward	"	8	17	0
Triumph	"	2	14	3
Duncan	"	5	18	0
Majestic	"	9	20	6
Renown	"	1	18	3
Royal Sovereign	"	7	18	6
Aki	Japanese	2	19	0
Kashima	"	2	18	6
Nikasa	"	1	18	6
Asahi	"	2	20	0
République	French	6	23	6
Jaureguibery	"	1	22	0
Suffren	"	1	23	0
Gaulois	"	3	21	0
Connecticut	United States	5	19	0
Virginia	"	5	17	10
Maine	"	3	18	9
Alabama	"	3	18	11
Kearsarge	"	2	11	6
Iowa	"	1	17	8

It will be noted that but one of these ships has a freeboard as high as twenty-eight feet as stated by the writer of the article while the vast majority has a freeboard less than the minimum height fixed by this critic. It might be added as a question for serious consideration in connection with the matter of high freeboard and high gun positions that the Russian battle-ships *Borodino*, *Kniaz*, *Suvaroff*, *Oslybia*, and *Alexander III.*, approximating twenty-seven feet, higher than any of our own

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ships now in service or any of the type of ships shown in the above table, excepting possibly the *Dreadnought*, capsized or were otherwise sunk in the battle of the Sea of Japan, and this after only a comparatively short fight. There is but one real justification for very high gun position, and that is to achieve efficiency for fighting in heavy weather at sea, and this single advantage is not only not likely, but is in all probability, as the *Army and Navy Journal* has frequently said, extremely unlikely to occur. To obtain this very slim advantage—improbable of realisation—amateur critics would have us knowingly build our ships with such decreased protection of stability that injuries by shells, admitting water to the hull, may seriously endanger if not actually cause the capsizing of our vessels.

We have never deemed it advisable to follow the French idea of great height of freeboard, but in our latest designed ships, with increased speed, length of hull and fine waterlines it has been thought to add to the freeboard. This, however does not appear to be the Japanese practice, as in their latest battle-ship, the *Aki*, of approximately 20,000 tons, they have still held the freeboard forward down to less than that of our *Connecticut* class.

Inasmuch as high freeboard in ships of moderate length involves an enormous increase in weight without corresponding increase in military efficiency, it may be regarded that our practice of the last ten years or more, supported, as it has been, by that of Great Britain and Japan, with respect to freeboard and height of guns, has been wise and productive of good results. Moreover, the behaviour of the Japanese battle-ships in the fight of the Sea of Japan should be conclusive testimony as to the ability of such vessels to fight capably under rough weather conditions, were such additional practical evidence necessary.

(To be continued.)

Bureau of Equipment.—The necessity of more colliers is brought out strikingly in the annual report of the Chief of the Bureau of Equipment, William S. Cowles, who pictures the disaster that would have befallen this country if, when the battle-ship fleet was in foreign waters, it had had an immediate need, in time of trouble, of large quantities of coal. This is the language of the report on this important subject:—"When it was decided to send the battle-ship fleet on its present cruise around the world, the question of supplying it with coal was a serious problem. The few colliers possessed by the Navy were utterly inadequate, and the Bureau was unable to obtain American ships at any reasonable price, and the total number of American vessels that might have been obtained by purchase or otherwise would not have been capable of carrying a sufficient amount of coal to supply the fleet on its voyage, hence it was necessary to charter foreign vessels for this purpose. Had foreign complications arisen, or had a combination been effected between foreign shipowners, our fleet might have had to remain lying helpless in some foreign port."

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The spectacle of sixteen great battle-ships lying powerless in port because of want of coal ought to impress our legislators with the proverbial good luck rather than wise provision that has attended our national fortunes. A lesson lies in this paragraph for our merchant marine advocates, too, for there is a serious indictment of our commercial shipping in the statement that not enough American ships were obtainable for carrying the necessary coal. Shipping bodies that have been waxing wroth over the chartering of foreign bottoms for coal transportation may read that paragraph with profit. Going on, the report says :—"The colliers now in service are not only not sufficient in numbers to meet the needs of the fleet, but in carrying capacity and steaming radius are utterly unsuitable for the purpose. The Bureau recommends that immediate steps be taken to supply an adequate number of colliers for the Navy. Of these colliers there should be at least one for every two units, with sufficient capacity for supplying four vessels." The average cost of coal during the year was much in excess of that for some years previous, due primarily to the greater quantity of coal shipped to long-distance ports, principally for use of the battle-ship fleet. A total of 618,085·11 tons of coal was used on ships of the Navy—49·30 per cent. for steaming, the rest for auxiliaries. The average total coal consumption on the battle-ship fleet has been reduced twenty per cent. owing to the system of competitive firing in the boiler-rooms of the ships. Though appropriation for coal and transportation was 40,000 dollars above the previous year's, two separate deficiency appropriations, one of 1,000,000 dollars and another of 700,000 dollars, were required.

It is recommended that junior officers be assigned to electrical duty for instruction. The reduction of weight aboard ship has received attention. Lighter weight fixtures and accessories have been adopted for small vessels, and conduit restricted in its use in all vessels. The Bureau has encouraged the development of smaller sizes of marine turbo-generators, and has now, under contract, sizes down to five kilowatts for torpedo-boat destroyers, whereby the inherent troubles to small high-speed reciprocating engines may be avoided. Specially designed turbo-generators are under construction for the *Castine*, suitable for charging the storage batteries of the submarines to which she is assigned as a tender. The saving of time as well as wear and tear on the submarine motors and on the *personnel* will add to the efficiency of these vessels. Much progress has been made in search-lights and their installation.

In the year marked progress has been made in wireless telegraphy. Many of the early difficulties and imperfections have been eliminated. The chain of intercommunicable stations now extends from Maine to New Orleans on the Atlantic coast, and from San Diego to Alaska on the Pacific. There are also intercommunicable stations in the West Indies and stations at Hawaii, Guam, and Cavite in the Philippines. Recent developments in the art now warrant the establishment of high-powered, long-distance stations. The Bureau contemplates the early erection of such a station at Washington, and eventually on the Pacific coast at Hawaii, Guam, Samoa, and the Philippines, so that the fleet will at all times be in direct communication with Washington wherever it may be. These stations are important, not only as an adjunct to the Navy both in time of peace

United States.

and in time of war, but they are also of great value to the merchant marine. When the high-powered station at Washington is erected, noon signals will be sent out, reaching every part of the North Atlantic Ocean. The vessels of the Navy, as well as merchant vessels, rely on these signals for the correction of chronometers, and they do much to lessen the perils of the sea. In the early future no vessel, in whatever seas she may be sailing, need be out of touch with any line of communication. Wireless telephony has been tested on board a number of ships, but has not proved satisfactory. It is believed, however, that before long telephonic communication between vessels will be thoroughly reliable. From 7th August, 1907, to 3rd June, 1908, sixty wireless messages regarding dangerous obstructions at sea were sent broadcast by naval wireless stations. Strengthening of the Hydrographic Office is recommended to the end that the Navy may, as it should, be independent of foreign sources for its charts and sailing directions. Unsurveyed waters in which the United States has a growing interest and which are liable to be left unsurveyed should be surveyed by the Navy. A Negus azimuth circle, having a device for taking observations of stars, is being tried at sea.

The total expenditure for library books on war-vessels was 23,949 dollars. An increase of pay of the clerical force of the Bureau is recommended, and attention is called to the insufficiency of the appropriations to meet the needs of the Bureau for the year, and to the consequent obligatory dispensing with many important and necessary items of ship's equipment. Considering the enormous increase in the size of fleets and their units, additional funds must be provided for equipment.—*Army and Navy Journal.*

MILITARY NOTES.

Home.

The following are the principal appointments which have been made:—

Major-Generals—E. C. Bethune, C.B., to be Colonel of the 4th (Royal Irish) Dragoon Guards. L. V. Swaine, C.B., C.M.G., to be Colonel-Commandant of the Rifle Brigade (The Prince Consort's Own).

Colonels—J. W. G. Tulloch, C.B., I.A., to be a Brigade Commander, and to retain the temporary rank of Brigadier-General while so employed. W. E. Banbury, I.A., to be a D.A.G., and is granted the temporary rank of Brigadier-General while so employed. B. J. C. Doran, C.B., from an A.A.G., to be an A.Q.M.G. H. J. Evans, from h.p., to be an A.A.G. E. R. C. Graham, C.B., from an A.A.G. at Headquarters, to be a temporary Brigadier-General to Command a Brigade. H. H. Barney C.B., from h.p., to be an A.A.G.

Latest Designs of the Motor in Warfare.—There is little doubt that armoured motor-cars will play a prominent part in the next great war, not only for purposes of transport, but also as engines of offence.

Home.

Practically every military nation to-day has its own type of war-car, all of them heavily armoured, and some with revolving turrets carrying quick-firing machine guns with bullet-proof shields, and capable of a speed ranging from thirty-five to forty miles an hour. On each of the Franco-German frontiers, where the greatest military forces in the world are massed, there are regular batteries of war-cars, and all of them take part in the elaborate periodical manœuvres, which tend more and more to reproduce the actual conditions of real warfare. In fact, so valuable has the motor car been found by military authorities, that a special Automobile Section of the British Volunteers has been formed out of a number of rich men, each owning a car which he agrees to hold in readiness for the use of the military, should occasion arise.

France, the home of the motor from the beginning, can count in time of war on at least 10,000 cars, in addition to many hundreds of motor wagons and trucks for heavy transport work and the haulage of guns. The motor-mitrailleuse, as the war-car of France is called, vies with similar vehicles already adopted in the German, Italian, Austrian, Russian, and British Armies. While all other motor vehicles in time of war will rely, like the light cruisers of our navies, on their high speed for escape, these powerful war-cars grimly remain behind and fight. Some of them carry revolving turrets mounting guns of quite large calibre. The engines are often of the 45-H.P. Mercedes type, and the cars are so geared that they can travel over incredibly rough ground and negotiate very severe gradients. They are, in fact, miniature travelling fortresses entirely proof against rifle fire, and capable of high speed. Thus their great destructive force, combined with their mobility, bids fair to introduce an entirely new element into the warfare of the future; and it is believed in many of the war offices of the world that these are merely forerunners of veritable land *Dreadnoughts*, capable of destroying entire cities that lie in their track.

The French car is much faster though less heavily armed than the latest German tyre. Another interesting point about the well-known C. G. V. motor-mitrailleuse is that it carries a kind of telescopic bridge, enabling it to cross comparatively deep ditches in its path, and even smaller streams. Possibly the most popular British type is the war-car invented by Mr. Frederick R. Simms and built by Messrs. Vickers, Sons & Maxim. This consists of a car surrounded with a crinoline of bullet-proof armour, flattened at the sides and having a ram fore and aft.

The car is about 30 feet long, weighs over six tons, and is propelled by a 20-H.P. 4-cylinder petrol engine. Its speed is up to fifteen miles an hour, and its armament two of the well-known "pompoms," which did such deadly service in the Boer war, and two automatic quick-firers. This car is intended for coast defence. It carries fuel for a run of no less than 500 miles, and above 10,000 rounds of ammunition. As an invading enemy will naturally not venture near a powerfully-armed fortress, it would certainly seem desirable to take the fortress to the enemy.

Home. The car supports a maximum load of 12 tons, and its Daimler engine is fitted with the Simms-Bosch magneto-electric ignition and timing gear.

It is capable of climbing a gradient of 1 in 7½. It carries search-lights, rope ladders, and a crew of twenty specially trained men. Another highly interesting British war-car is that provided by the London, Brighton and South Coast Railroad, whose servants form the crew and are also members of the First Sussex Artillery Volunteers. This is a kind of armoured freight-car for coast defence, and it carries no less a weapon than a 40-pounder gun, mounted on a turntable in such a way that it can be fired in any direction. Lord Charles Beresford himself inspected and fired the weapon, and described the car as quite a formidable fortress on wheels. During the recent September manœuvres, the German Emperor expressed himself delighted with the powerful cars of his engineers, and watched with great interest their cross-country runs, which included very steep, grassy slopes, which it looked madness to attempt. Some of the cars were fitted with "walking" wheels—that is to say, instead of a continuous tyre, there were a series of circular disks or pads, which gave the entire machine an astonishingly powerful grip on the wildest and most rugged country which could possibly be traversed.

The manœuvres with these new German war-cars were of a highly realistic kind—as is always the case when the Emperor himself is present. There were dozens of weird-looking wheeled fortresses which pursued one another up hill and down dale, manœuvring for advantageous positions like powerful cruisers in a fair seaway. They circled round one another in intricate convolutions, changing speeds and belching forth what appeared to be terrific hails of lead. Unfortunately, there were several serious accidents, though these could hardly be ascribed to defects in the mechanisms of any of the cars. It is noteworthy, when considering these armoured war-cars, to bear in mind that the earlier types were merely tentative efforts; and as their practical value is demonstrated, they tend like battle-ships to grow larger, faster, and with more powerful armaments. It seems likely that in the near future the once-dreaded war chariots of antiquity will be revived on a colossal scale. But their weapons of offence will be not merely a few sickles attached to the wheels, but rather a battery of modern guns of terrific power, securely intrenched behind impregnable walls of nickel steel, the entire fearsome fortress being capable of propulsion at the speed of an express train across all but the wildest and most rugged country.

The Germans are already beginning to construct the most ambitious of war-cars as to size and armament, and their evolutions in the field are now largely directed by the war-balloons of the Engineers.

Ehrhardt, of Düsseldorf, has recently exhibited an interesting war automobile at the International Automobile Show held in Berlin.

The war automobile is driven by a 50 to 60-H.P., 4-cylinder gasoline motor, corresponding in the main with the usual Ehrhardt-Decauville construction. The 5-cm. (1·9-inch) quick-firing gun is free to rotate around a support bolted to the frame of the car, on which it is located;

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it is displaced extremely quickly and readily both in a vertical and horizontal direction, so that it can be directed against military balloons and air-ships.

The gun is entirely surrounded by an armoured casing of nickel steel plate 3·5-mm. (0·137-in.) in thickness, which protects the car driver and crew.

All devices for operating and guiding the car as well as for serving and training the gun are arranged inside the armour. For blocking the car there have been provided, inside the armour casing, four substantial spindles which at a moment's notice are lowered from inside in order to be screwed fast, thus unloading the springs and obtaining a rigid support for the guns. The ammunition stored inside the armature is sufficient for 100 rounds. The weight of the vehicle, inclusive of a staff of five men, is 7,040 pounds. On smooth roads the automobile attains a speed of 29 miles per hour. Forest paths of a gradient of up to 20 per cent. are readily traversed.—*Scientific American.*

Austria-Hungary.

The Archduke Eugene, General of Cavalry and Commander of the 14th Corps, and Lieut.-General Fiedler, have been appointed Inspectors-General of the Army. There are three Inspectors-General, whose duty it is to unify the instruction of the troops, and report on their military efficiency and that of their commanders, their discipline and their spirit. These three inspectors are the eyes of the command-in-chief of the Army, and are directly responsible to the Emperor. They are considered in the Army as its leaders in the event of war.

The Annexation of Bosnia-Herzegovina.—The annexation of Bosnia-Herzegovina adds 51,000 square kilometres (19,619 miles) to the Empire, and a population of 1,721,720 inhabitants. About one-third of the natives are Mahommedans, and more than half the remainder Orthodox Greeks, and with rare exceptions are all of the Slav race.

With compulsory service they furnish the Monarchy in time of peace with 17 battalions of infantry, stationed in Austria and Hungary, besides certain detachments of the train in Bosnia. During 1908, natives have been incorporated in certain units of Artillery and Pioneers.

Following on the proclamation of the annexation of Bosnia-Herzegovina, an Imperial Order has decreed that the recruits levied in the annexed territory shall, for the future, take the oath with the same formalities as the other Austro-Hungarian troops. And, in addition, the Bosnian troops will be styled "Imperial and Royal," as are all the other troops in the Imperial Army.

New Armament for the Cavalry and Mounted Arms.—A new sabre (model 1904) has been adopted for the cavalry and other mounted arms. It is lighter and handier than the one it is replacing. The old revolver has been also replaced by an automatic pistol, which is a more efficient and, at the same time, a lighter weapon.

Formation of a New Machine Gun Detachment.—A fourth detachment of machine guns for service with the cavalry, similar to those

Austria-Hungary.

already in existence, was formed last October. The Austro-Hungarian Army now possesses 61 machine gun detachments —57 infantry and 4 cavalry.

Volunteer Austrian Automobile and Motor-Cyclist Corps.—The *Verordnungsblatt* of the 22nd of last September, has published the basis of the organisation for the corps of Austrian Volunteer Automobilist and Motor-cyclists (Motor Korps), whose duty in time of war will be the transmission of orders and reports.

The commander of the *Motor-Korps* is nominated by the Emperor, and chosen, in principle, from among the ordinary members of the Austrian Automobile Club. He corresponds directly, on matters of service, with the Austro-Hungarian Minister of War, the Minister of National Defence, and the two corps placed under his orders.

Reservists, who are members of the *Motor-Korps*, are to accomplish at least one of their periods of training in the ranks; they can go through the others as automobilists or motor-cyclists.

1. *Corps of Volunteer Automobilists.*—The Automobilist Corps comprises the commandant, his assistant, and members.

The two first are nominated by the Minister of War, on the recommendation of the Chief of the *Motor-Korps*. They decide, without appeal, the acceptance of candidates.

These must be Austro-Hungarian citizens, possess an automobile of approved construction, an explosion-motor of at least 16-H.P., and a license to drive.

Before being accepted the candidates must sign an undertaking:—to serve unconditionally in time of war, during which they are subject to all the obligations of discipline and military law; to put in, in time of peace, for four consecutive years, three terms of training (at most ten days each), and to obey the orders of the military authority, under whom they are carrying out their periods.

All the Volunteers wear, during training, a special uniform, viz., a blue pilot jacket, with grey facings; grey breeches, yellow leggings and boots, blue overcoat, revolver and field-glass.

In summer, the wearing of a linen uniform is allowed.

In time of peace, the allowances, for each day of training, are as follows:—15 crowns (12s. 6d.) for each Volunteer, oil and spirit being supplied free.

In time of war, the officers or Reserve Cadets receive the pay of their rank; the other Volunteers, 300 crowns (£12 10s.) per month. Each Volunteer receives, in addition, an allowance of 1,000 crowns (£41 13s. 4d.) on joining for active service.

2. *Corps of Volunteer Motor-Cyclists.*—The Corps of Motor-cyclists comprises the commandant, his assistant, and groups formed in the 16 territorial districts. Each group consists of a commandant and a certain unspecified number of members.

The commandant of the Corps and his assistant are nominated similarly to those of the Automobilists; the commandants of groups, by the commanders of Army Corps, on the recommendation of the commandant of the Motor-cyclist Corps.

The commanders of Army Corps decide, without appeal, the question of the acceptance of candidates, on the recommendation of the group commanders.

Austria-Hungary. The candidates must be Austro-Hungarian citizens, possess a driver's certificate and a motor-cycle (of at least 5-H.P., if it acts as a motor-cycle with a trailer; of 2- to 5-H.P. if a single-seated motor-cycle), or a small car of 8- to 14-H.P., or a bicycle with an auxiliary motor of at least 1¼-H.P.

They must engage in writing as the Automobilists. Their uniform is grey with black or yellow boots and leggings, a revolver, and field-glasses.

In peace time the allowances, for each day of training, are as follows: 15 crowns (12s. 6d.) for each Volunteer bringing a small car; 6 crowns (5s.) for each motor-cycle; oil and spirit being provided free.

The Volunteers, in war time, if holding army rank, receive the pay of their rank; other Volunteers, 300 crowns (£12 10s.) a month.

The allowance fee on joining for the field is 1,000 crowns (£41 13s. 4d.) for a small car, and 300 crowns (£12 10s.) for a motor-cycle.

New Campaign Uniform for the Infantry.—Up to the present the infantry of the Austro-Hungarian Army and the Bosnian troops have worn a blue uniform. Among the infantry, the Chasseurs, the technical troops, and those of the supply and administrative departments, have alone worn a light grey uniform, with, however, a dark cloak; the infantry of the Austrian *Landwehr* also had a light grey jumper, but with a cap, and dark trousers and overcoat.

A circular of the 7th October has given to the foot troops of the Army (infantry, Bosnian troops, technical, hospital, and other administrative troops) an entirely light grey uniform.

The uniform is the same for officers and men, save for some slight differences, and officers are particularly directed to have for their outfit the same colour grey as that for the men.

The Austro-Hungarian infantry, therefore, now has a field uniform of an almost invisible colour, and as the officers wear absolutely the same uniform, with no lace, but only stars on the collar of their jackets, it will be difficult to distinguish them from their men.—*Revue Militaire des Armées Etrangères.*

The estimates for the Austrian Army in 1909 will amount to 334,000,000 crowns, being an increase of 15,000,000 crowns upon the expenditure of 1908. (A crown is about tenpence of English money). There will be some increase in pay, and a large sum is to be expended upon the addition of machine gun sections, increasing the total number to 110. The cost of the re-armament of the field artillery is borne upon the extraordinary credits of 1904-5, based upon a cost of 165,000,000 crowns, to be completed by a credit of 35,000,000 crowns next year, the sum of 15,000,000 crowns remaining to be voted. Between the present time and next May about seventy machine gun sections will be organised for infantry and rifle battalions. At the same time, a third cavalry machine gun section is to be provided. For the provision of the machine gun sections for the detached infantry battalions—those until recently known as the garrison of the occupied provinces—forty-five of these sections have to be constituted. —*Militärische Presse.*

China.

The Army.—At the present time in China a strong current of reform is setting in, more especially from a military point of view. The death of the Dowager Empress and the Emperor did not give rise to any anarchical demonstrations, and the reign of the young Emperor Pu-yi commenced peaceably, under the regency of his father, Prince Chung. The latter is an enlightened prince, and comparatively well informed in military matters. He put his name down amongst the first in 1906 for the special courses in military and general instruction, formed at the school for the nobility, for princes of the Imperial Family, and Tartar marshals, and was an assiduous attendant. He interests himself in military matters, and has proved it by his frequent inspections of the 1st Division of the new Army, composed of Manchus, and in barracks to the north of Pekin.

His rise, if not to the throne, at least to actual power, indicates a hopeful augury for the regular development of the young Chinese Army. He has besides with him as first Vice-President for Foreign Affairs the former Viceroy of Chi-li, Yung-Chi-Kai, to whose work this reorganised Army may be regarded as specially due, for nearly all the general and field officers came from the first regimental schools created by Yung-Chi-Kai, in his province of Chi-li, and they have all remained profoundly devoted to him.

It cannot, however, be said that the higher command in China is at the height of efficiency—far otherwise; but one should take into consideration the point from whence a start was first made, and the enormous progress realised. The Corps of Officers is in process of marked improvement; ideas of drill begin to take hold, and open order is rationally practised. On the other hand, although the armament is not bad (the 6·8-mm. Mauser rifle and Q.F. 75-mm. guns), the troops undoubtedly do not obtain the maximum results from it on account of insufficient target practice, and this cause is probably due, at any rate partially, to budgetary reasons. The latter are a very serious check on Chinese reform, for in their present condition all China's military efforts must be irregular and insufficient.

It appears thus probable that the new Army will not be thoroughly organised at the date originally fixed, viz., 1912. The programme consists in the raising of 37 divisions, having a total effective of 400,000 men. It is not the less true that the Celestial Empire can now show some 120,000 men in a tolerable state of efficiency, with reserve, as has been mentioned before, of the insufficient capacity of the higher command. And it may be assumed, since the change of Sovereign provoked no convulsion in that enormous Empire, that in a few years hence she may be able to defend herself not merely by her size and her inertia but by her strong right hand, and make herself respected by Japan as well as by Europe or the United States. This is a fresh proof of the old maxim, "*Si vis pacem, para bellum.*"—*La France Militaire.*

France.

Recruiting Statistics for 1907.—The number of youths of the 1906 Class inscribed on the rolls in January, 1907, amounted to 313,787, a decrease of 13,006 on the numbers of the preceding class. By adding those put back in 1905 (42,727) and in

France. 1904 (25,793), the total recruiting resources amounted to 382,307 youths, who were distributed as follows :—

Exempts as unfit for service, deceased, etc.		44,178
Not allowed to serve, convicts, etc.		75
Put back		34,443
Respited		2,548
Passed fit for non-combatant branches		37,123
Naturalised, and on account of age, exempt from service in the Regular Army		1,237
Serving as Volunteers	In the Army (*a*) ...	24,198
	In the Navy (*b*) ...	4,926
Enrolled in the combatant branches		233,597
Total.....		382,307

1,074 men of the contingent having been posted to the Colonial troops and Navy, the combatant contingent of the Home Army is thus reduced to 232,505 men, or about 15,000 less than that of the preceding year. In this total are included 13,696 men who failed to appear, but who were posted to units as though present.

Of the 37,123 men passed fit for the non-combatant branches, 12,472, coming from those put back from the 1904 Class, were exempted from service in peace time, and 119 others were dispensed from service on account of age; consequently the total number of men drafted into the non-combatant branches amounted actually to 24,532.

Including the non-combatants, the total contingent for the Home Army thus amounts to 257,037 men, who were thus distributed:—

—	Combatants.	Non-Combatants.	Total.
Infantry...	153,721	8,728	162,449
Cavalry	24,854	2,965	27,817
Artillery...	38,888	6,386	45 274
Engineers	7,470	2,114	9,584
Transport	2,250	424	2,674
Administration troops and hospital orderlies	5,322	3,917	9,239
Total	232,505	24,532	257,637

As regards education, the 313,789 recruits inscribed on the registers are thus distributed :—

Neither read nor write	11,062
Able to read only	4,290
Able to read and write	71,793
Having a more highly developed primary education	197,847
Having a certificate of primary education ...	5,925
Having a university degree	6,853
Education not certified	16,017

The calling to the colours of the class took place on the 1st, 7th, 8th, and 9th October 1907.—*Bulletin de la Presse et de la Bibliographie Militaires.*

France.

Infantry Machine Gun Detachments.—La France Militaire thinks it opportune, now that the great majority of the infantry, after the battalions of *Chasseurs à pied de l'Est*, are, or are about to be, provided with machine guns (two sections per regiment, one section per battalion of Chasseurs), to give some information about the organisation of these sections not yet generally known.

In the battalions of *Chasseurs à pied* the sections are either conveyed in wheeled transport (a provisional solution) or carried on pack horses. In the infantry regiments the sections are on pack horses.

Organisation—Sections on Wheeled Transport.—The *personnel* on a peace footing of the firing section consists of 1 lieutenant, 1 sergeant for range-finding, 2 corporals (captains of gun), 6 men for serving, 1 assistant range-finder, 1 armourer; in addition, 1 corporal and 5 men (orderly, ammunition suppliers, drivers); a total of 1 officer and 17 men.

On a war footing the above *personnel* is completed by the addition of 1 corporal and 6 men, making a total of 1 officer, 23 men, with 1 saddle and 9 draught horses. The men are not provided with cartridge case slings (*bretelles de suspension*), as they only carry two cartridge cases on their waist belts; the range-finder only one.

As *matériel*: In addition to the machine guns, there are two company carts fitted up to carry the guns, and each carrying 9,900 cartridges in boxes, 1 machine gun caisson containing 27,000 cartridges in cases, and carts carrying 40,000 more rounds. The total ammunition provided being 43,000 rounds per gun.

The Mounted Sections.—The *personnel* remains the same, but there are more drivers, while the *matériel* consists of the guns, ammunition boxes, and a machine gun caisson.

The section on pack horses can go anywhere; it can more easily—and this is an appreciable advantage—be masked than the sections in carts. The getting the gun ready for action takes a little longer; but when the men are well drilled the operation will not take longer than in the mountain batteries.

All the machine guns which have been distributed are of the Puteaux model.

The following general rules are laid down :—

Bringing the Battery into Action.—It is necessary always to try to find shelter for or mask the machine gun, since the men are very exposed.

Every battery should be brought into action under cover if the guns are to produce all the effect of a surprise. It is necessary, then, before placing the battery to make a careful reconnaissance.

When once the order is given for action, the section leader chooses a masked position, so that the carts and pack animals may be unloaded under cover.

While the guns are being unladen, the section chief goes towards his probable firing position to choose a place of shelter, where he will halt all his men whilst he finishes the reconnaissance.

This done, he points out the object to his captains of guns, and gives the elevation of the sights and the position to be occupied. The battery can then be brought into action with all celerity.

France.

On uncovered ground the section occupies its battery position man by man. On the defensive the guns are sheltered behind epaulements. When the position is changed the guns are carried by hand to the new one chosen by the section chief.

Their employment may be thus summed up: Not to open fire at too great a range, to avoid a struggle with artillery, and aid the infantry in the offensive; to act, above all, on the defensive (covering the wings, command defiles, strengthen a salient point, sweep dangerous points of passage, support a counter-attack, come into action at the moment of the assault, and open fire on the retreating enemy, etc.).—*Revue Militaire des Armées Etrangères.*

Scarcity of Reserve Officers.—At the present time there is a very great deficiency, particularly in the infantry, in the number of Reserve officers. In his report on the Military Estimates, M. Gervais calls attention to the fact that on the 1st September last out of 12,265 officers required for the infantry there were 4,612 short, although, as the result of the new regulations establishing a two years' period of service, since the 1st April last, a great number had been appointed at the end of their 18 months' term of service. In the meantime people must console themselves with the knowledge that the quality of these officers is much better than formerly. Out of the 3,837 Reserve officers required for the artillery there were only 119 short; but on the other hand, there was a deficiency of 164 out of the 406 required for the train. It will be particularly difficult to obtain these last, and it will be necessary to draw upon the reserve officers of the cavalry to fill the vacancies.

Reserve officers may be non-commissioned officers; this, which is repugnant to our ideas, is now a regularly established thing in France. Reserve officers, who have acquitted themselves well in the Reserve Officers' Schools, may volunteer for duty as under-officers in the Army, and must then at the termination of their service only request to be relieved of their rank as reserve officer, which will be complied with by the Minister of War.

Stations of Air-ships.—The air-ships "République," "Liberté" (under construction), "Ville de Paris," and "Lebaudy" have been by now provided with shelter in the large fortresses situated on the eastern frontier, where they are to be used in case of war for reconnaissance purposes. They are built on the Lebaudy non-rigid system, with a capacity of 2,950 to 3,700 cubic metres. For strategical or distant scouting the "Dirigible for the Army," at present under construction, is to be used in contradistinction to the "Fortress Dirigibles." It is being constructed on the half-rigid principle, with a length of 328 feet, a diameter of 37 feet 6 inches, and a capacity of 8,000 cubic metres. The crew will consist of six men, but it will be able to carry more, as well as some shells. It is to travel 60 kilometres (37 miles) in the hour.—*Ueberall.*

The French troops at Lille are shortly to receive three batteries of the new heavy field guns of the type known as "Cannon 155 R." These are 6-inch guns of the new type designed by Major Ramailho, of the artillery, and are not like the previous heavy 6-inch pieces, but are capable of

France. being used in any country presenting no great difficulties of transport. The gun is detachable from its mounting, and is drawn upon a wagon with a total weight of 2,100 kilogrammes. The mounting is conveyed upon another wagon with about the same weight, and the gun is mounted with great rapidity owing to the well-designed means that are available. The *Echo de l'Armée* says that each wheel of the mounting rests on a shoe, while the recoil is also taken by a spade attachment. On firing, the gun recoils upon slides, and is arrested by a pneumatic brake, which, by expansion, returns the gun to its original position. It is stated that a number of rounds may be fired without the gun being relaid. About five rounds can be fired per minute, each weighing forty-three kilogrammes, charged with thirteen kilogrammes of mélinite. These guns will be employed in the forthcoming operations of the Ist Army Corps.

The replacing of the French soldier's old knapsack by a kind of baluchon, without a rigid frame, and weighing but nineteen pounds, has reduced the soldier's total burden on march to thirty-five pounds, this including his rifle, cartridges, and spade. There is said to be one drawback in giving up the old knapsack, for it afforded the soldier excellent protection against the bullet fired by the Q.F. guns. The bullet referred to is fatal to a man when he is exposed, but if it strikes a little entrenchment or a knapsack the man is unhurt. The discarded knapsack was of the greatest value to the infantry acting as sharpshooters.—*Army and Navy Journal.*

Roumania. *The New Army Organisation.*—The re-organisation of the Roumanian Army has recently been carried out, in consequence of a law, promulgated in March last, which was passed as a result of the reduction in the period of service of the dismounted branches of the Regular Army. This period was three years; it will, in future, be not more than two. The new War Minister has considered it advantageous to seize the occasion of this reduction to increase the infantry effective, so as to replace the temporarily raised battalions by permanent units.

The law constitutes the Army into the following categories:—

a. The Army with its Reserve;

b. The Militia.

These two categories the Army of operation.

c. The Territorial Army, specially designed for the defence of the country itself.

The period of service is for 19 years, from 21 to 40 years of age, viz., 7 years, distributed as follows:—

1. Dismounted branches, 2 years with the colours, 5 on leave.
2. Cavalry, artillery, gendarmerie, frontier guards, 3 years with the colours, 4 on leave.
3. Navy, 4 years with the colours, 3 on leave.

All soldiers belonging to 2 and 3 lists are drafted directly into the Territorial Army at 30 years of age. The dismounted branches pass 5 years in the Reserve, 3 in the Militia, and 4 in the Territorial Army.

Roumania. The Army is grouped into 4 Army Corps, forming 9 divisions. The Navy consists of 2 divisions, one for the Danube, the other for the Black Sea.

The Army Corps consists of :—

a. The commander and his staff;
b. 2 or 3 divisions, having a command staff, 2 infantry brigades of 2 Regular and 1 or 2 Reserve regiments, 1 Chasseur battalion, an artillery brigade of 2 regiments, and the non combatant services;
c. 1 or 2 cavalry brigades;
d. A pioneer battalion;
e. A telegraph company;
f. Non-combatant troops and services.

The new organisation was put into force at the commencement of the budgetary year, April, 1908. The War Budget amounts to £2,168,000 an increase of £20,000 on that of last year. The Budget lays down the following as the principal troops of the land forces :—

116 Regular infantry battalions.
34 Reserve infantry battalions.
11 permanent cavalry regiments (*Rosieri*).
8 temporary cavalry regiments (*Calarasi*).
96 field batteries.
2 garrison artillery regiments.
5 pioneer battalions.
2 battalions, communication troops.
4 transport squadrons.

—*Revue Militaire Suisse.*

Spain. *Machine Gun Groups.*—The Spanish Army disposes at the present time of six groups of machine guns, attached to the two brigades of the 1st Organic Division, to the 2nd and 3rd Brigades of Chasseurs, and to the Ceuta and Melilla Brigades.

These groups are organised (*Circular of 11th September*) each in two sections with two guns, while keeping their previous distribution.

The 1st Chasseur Brigade will be the next to have a group attached.

The sections equipped with Hotchkiss guns have 1 lieutenant, 2 sergeants, 2 corporals, 1 first-class and 14 second-class soldiers, and 7 pack mules. The sections armed with Maxim guns have 15 second-class soldiers instead of 14, and 8 mules, one of which carries the water for the service of the guns. For the administrative point of view the sections are attached to the first battalion of each of the regiments of the Infantry Brigades, or to the first companies of the first battalions in the Chasseur Brigades

The *personnel* are armed with the Mauser carbine and sword bayonet. The supply of ammunition is 5,400 rounds a gun, 2,400 being carried by the two ammunition mules and 600 by the gun mule; 1,200 rounds are allowed for the annual instruction.—*Revue Militaire des Armées Etrangères.*

Turkey.

The Ministry of War.—As the result of the events of last July, which have given Turkey a constitutional *régime*, there has been a complete change among the officers holding high appointments in the Army.

There have been three successive Ministers of War: 1, Marshal Eumer Ruchdi Pasha, who has been Chief of the General Staff of the Army; 2, Marshal Redjeb Pasha, late Governor of Tripoli, who died suddenly the day of his arrival at Constantinople; 3, Marshal Ali Riza Pasha, who is at present filling the office.

The Marshal, who is fifty years of age, completed his military studies in Germany. During the Turco-Greek war he was Chief of the Staff of the Seyfoulat Division. After having been Vali of Monastir he served in Yemen, where he directed the operations before the arrival of Marshal Feizi Pasha, at Damascus; then he was appointed to superintend the construction of the Hedjaz railway.

The new Chief of the General Staff is General Izzet Pasha, who during the Turco-Greek war served as an officer on the Headquarter Staff of General Edhem Pasha; he was afterwards Chief of the Staff to Feizi Pasha in Yemen, where he was wounded, and he later commanded the 14th Infantry Division in the same district.

The Grand Mastership of the Artillery has been suppressed as a special and independent branch of the Ministry, and has been turned into a simple department, subject to the authority of the Minister of War. The new head of the department is General of Division of Artillery Riza Pasha, who was formerly assistant to Zekki Pasha, the Grand Master.

All the commanders of the seven army corps have been changed, among the new appointments being that of General Mahmoud Pasha, to the command of the 1st Corps, who is a son of that well-known old veteran, Marshal Ghazi Mouktar Pasha, who so distinguished himself in Asia Minor during the war with Russia, 1877-78, and who has been for many years past Turkish High Commissioner in Egypt.

Tranformation of the Newly-formed Nizam Divisions into the 3rd Ordou (Army Corps).—An important modification has been made in the composition of the 3rd Army Corps (Macedonia). Up to recently this army corps consisted of the 5th, 6th, 9th, 17th, 18th, 22nd, and 23rd Divisions of Infantry and the 17th Infantry Brigade, a total of seven and a half divisions (126 battalions). Under the new order two divisions and the half division, the 22nd and 23rd, and the 47th Brigade, formed at the beginning of 1907, have been now done away with. The men of these two divisions have been transferred to the other Nizam Corps, and their cadres have served to reconstitute the old two and a half divisions of the 1st Category of Redifs (9th and 10th Divisions and 21st Brigade). The 3rd Army Corps therefore now consists of five Nizam Divisions (3rd, 6th, 9th, 17th, and 18th) and four Redif Divisions of the 1st Category (9th, 10th, 11th, and 12th), of which two and a half divisions are in Europe.

Turkey. From the number of effectives placed in line in previous campaigns, it may be calculated that the effective of a Turkish battalion on a war footing is about 800 men, and that of a squadron 150 men.—*Revue Militaire des Armées Etrangères.*

United States. *Army Manœuvres.*—In the United States the manœuvres cannot, as is known, be compared with those of European Armies. Firstly, they do not only take place in the autumn—based on the exigencies of the varying climate, on the capacity of the camps of instruction, and subordinated by the civilian obligations of the Militia, they extend from the commencement of June to the middle of September. Finally, they consist either of coast manœuvres or progressive evolutions in camps of instruction, or of regimental drills for Militia, who do not take part in the two forms, at an ordinary camp in the State to which the troops belong, or of long-distance marches. One fact emerged from the commencement of the 1908 manœuvres, viz., that the National Guard, since the mobilisation for the Spanish-American war, had not received such a training.

There is not much to be said with regard to the coast manœuvres. It was a repetition, on a larger scale, of those of 1907. It may be noted that the infantry regiments of the National Guard permanently attached to the service of the coast batteries, concurrently with the Regulars, have been given the official designation of Coast Defence Regiments. Those retaining the *rôle* of infantry, and who only serve as a support to these batteries, have not been given any special title. It is probable that the attachment of the latter is not permanent.

Amongst the regular camps of instruction, Pine Camp, in the State of New York, holds the first place for its duration and for the numbers who trained there. The Militia arm deserving the most praise is undoubtedly the cavalry, which would be astonishing if one did not know that the squadrons of the Eastern States are recruited and mounted in an altogether exceptional manner. The men belong, as a rule, to a higher social status, often of the first families in the district, and the *esprit de corps* of these troops is remarkable. The officers study their profession, outside the limits of their training, with a zeal worthy of all praise, and this explains why the Regulars at the manœuvres were struck with the efficiency of the New York, Brooklyn, and New Jersey squadrons. These remarks may be applied more or less to all the Militia cavalry, which is small in numbers but full of possibilities. Few days would suffice, in the event of war, in forging them into an excellent weapon in the hands of the chief command.

As regards the infantry, it is evident that it suffers considerably from the fact that the great majority of the men pass from section and company drill to regimental and brigade manœuvres, as well as to field service. The evil is especially noticeable in the corps composed of detached companies; that is to say, quartered in small localities with insufficient drill-halls. It is not easy to remedy this state of affairs, which it would not appear possible to improve until the various corps have participated in a great many manœuvres at camps of instruction.

United States

Many Militia batteries were not called out to these exercises. The majority took part in long-distance marches or in small evolutions in State camps with Regulars, and it is therefore impossible to come to any definite conclusion regarding them. One thing, however, that could not escape notice was the defective nature of the teams hired for the occasion, and quite unaccustomed to artillery work. That is an almost universal evil. It was noticed, for example, that a battery at Camden, in New Jersey, found it impossible to take to the road for that sole reason; the drivers, too, appeared to be but indifferent horsemen, and it is difficult to say what might have happened but for the assistance of the men of the Regular cavalry, who were escorting the battery. In another place it was easy to see that certain drivers were totally unaccustomed to riding. It is very apparent that, more than any other arm, artillery should undergo a severe training before taking the field.

A certain number of motors were employed as convoys during the manœuvres; but as the troops were in camp every evening, the supply service was much simplified, and the experiences were not conclusive. On the other hand, motor cycles, which were issued to some orderlies at Pine Camp, were but of little use owing to the nature of the ground.—*Revue Militaire Suisse.*

NAVAL AND MILITARY CALENDAR.

DECEMBER, 1908.

2nd (W.) 5th Dragoon Guards left South Africa for England in the *Braemar Castle.*

" " The Emperor of China was crowned at Pekin.

3rd (Th.) 1st Bn. Royal West Surrey Regiment left India for Aden in the *Rohilla.*

6th (S.) 2nd Bn. Royal West Kent Regiment arrived in Lebong from Singapore in R.T.M.S. *Dufferin.*

8th (T.) 1st Bn. Royal West Surrey Regiment arrived in Aden from India in the *Rohilla.*

" " 1st Bn. Bedfordshire Regiment left Aden for England in the *Rohilla.*

14th (M.) H.M.S. *Queen* paid off at Devonport.

" " H.M.S. *Irresistible* paid off at Chatham.

15th (T.) H.M.S. *Queen* recommissioned at Devonport.

" " H.M.S. *Irresistible* recommissioned at Chatham.

16th (W.) 2nd Bn. Liverpool Regiment left England for India in the *Rewa.*

18th (F.) XLII. Brigade R.F.A. left India for England in the *Dongola.*

20th (S.) Launch of first-class battle-ship *San Marco* from Royal Dockyard, Castellamare, for Italian Navy.

21st (M.) H.M.S. *Prince of Wales* paid off at Portsmouth.

22nd (T.) H.M.S. *Prince of Wales* recommissioned at Portsmouth.

28th (M.) 5th Dragoon Guards arrived in England from South Africa in the *Braemar Castle.*

Addendum to November Calendar.

14th November (Sat.) Launch of 2nd Class Cruiser *Kolberg*, from Schichau Yard, Danzig, for Imperial German Navy.

FOREIGN PERIODICALS.

NAVAL.

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Rivista Militaire Italiana. Rome: November, 1908.—Has not yet been received.

PORTUGAL.—*Revista de Engenheria Militar.* Lisbon: October, 1908.—"The German Military Air-ships." "Fortification in the Defence of the Country." "Some Projects and Works Executed in the Province of Mozambique during the last nine years." "Photo-Electric Material." "The Japanese Army in 1908."

Revista de Infanteria. Lisbon: December, 1908.—"Portable Spade for Infantry." "Training of Recruits." "The Eastern Question." "In South Africa: The Campaign of 1907" (*continued*).

SPAIN.—*Memorial de Ingenièros del Ejército.* Madrid: December, 1908.—Has not been received.

Revista Técnica de Infantería y Caballería. Madrid: 1st December, 1908. — "The Condé de Fuentes and his Times" (*concluded*). "War Maxims of General Oku." "San Marcial" (*concluded*). "Balloons and their Use in War." "The Cavalry in the Manœuvres of the 1st Region (20th to 25th October, 1908)." "Napoleon in Spain." 15th December.—"Clausewitz." "The Cavalry in the Manœuvres of the 1st Region (20th to 25th October, 1908)" (*concluded*). "Report on the Musketry Course by Infantry First Lieutenants at the Central Musketry School in 1907." "Military Automobilism." "Sugar in the Soldier's Rations." "Ages in the Higher Ranks of Command in the Campaign of 1808."

Revista Científico-Militar y Bibliotéca Militar. Barcelona: 10th December, 1908.—"The New Infantry Tactics." "Instructions for the Leaders of Cavalry Patrols when Reconnoitring Artillery." "Instruction for the Attack and Defence of Fortified Positions Strengthened by Outworks" (*continued*). 25th December.—"Instruction for the Attack and Defence of Fortified Positions Strengthened by Outworks" (*concluded*).

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: December, 1908.—"The Plan of Campaign of the Army of the East." "The Austrian Imperial Manœuvres in 1908." "Swiss Infantry Drill Regulations." "On the Construction of Guns against Balloons."

UNITED STATES.—*Journal of the United States Artillery.* Fort Monroe, Virginia: November-December, 1908.—"Test of Self-contained, Horizontal Base Range-finders at Fort Monroe, V.A." "Barr and Stroud Range-finder." "Present Method and Lessons in regard to Field Artillery taught by the Russo-Japanese War." "The Co-efficient of Form as determined by the Shape of the Head of the Projectile." "Overs and Shorts of Photography." "Sea-coast Artillery Practice."

NOTICES OF BOOKS

Washed by Four Seas. By H. C. Woods, F.R.G.S. (formerly of the Grenadier Guards). T. Fisher Unwin. London, 1908.

This is a very readable book, and has appeared at an opportune time. Few people know very much about the Sultan's dominions, even about such cities as Constantinople, Adrianople, and Sofia, although these are all now within easy reach of travellers on one of the world's great highways. The author not only gives bright little descriptions of these and other towns he visited, but he takes his readers away from the beaten tracks into the interior and introduces them to the mountainous regions of the Rhodope Balkans, the name given to the series of ranges along the southern frontier of Bulgaria, which shut off that country from access towards the Mediterranean, and which Mr. Woods crossed when making his way into Bulgaria from Dédé-Agach on the Ægean, through Gumulgena, a town of some importance, through which the line from Dédé-Agach to Salonika passes.

The author, who started his tour from Smyrna, has naturally a good deal to say about Constantinople, a city which seems to have had a great attraction for him, for "with its mysteries, its quaint suggestive sadness, its dramatic interests, and its picturesque dirt it is a city to which the traveller ever returns with quickened interest. He never wearies of it, its beauties, its symbolisms, and its strange almost weird contrasts." And there are many who know the capital of the Sultan well, who will agree with him. He devotes a chapter to the dogs of the city—most people have heard of them—and gives some novel and quaint information about their habits, and the strict unwritten laws which the different packs seem to acknowledge among themselves and obey. In another interesting chapter the author describes the defences of Constantinople in some detail, from the entrance to the Dardanelles up to the head of the Bosphorus, although information about the forts at the entrance to the Dardanelles is apparently impossible to obtain, for the movements of foreigners are most jealously watched; but he evidently considers that the strength of these defences is far greater than is suspected, and that an attempt to force the passage by a fleet would be a work of great difficulty and attended by heavy loss, and he holds the same opinion with regard to any attempt to force the northern end of the Bosphorus, where the forts are extremely well hidden and so arranged as to cover the various straight reaches of the channel. Much work has apparently been done on these defences, many modern

Krupp guns having been mounted since the Russo-Japanese war. When Russia is weak and unable to protest, Turkey invariably seizes the opportunity of strengthening her defences.

We cannot follow Mr. Woods in his journey through the Rhodope Balkans, but he seems to have used his eyes to good purpose and to have noted, among other things, the precautions taken by the Turks to prevent the main line from Constantinople to Salonika being interrupted should an enemy effect a landing at Dédé-Agach. He was also much impressed by the work which the Turkish Government was carrying out all along the route through the mountains to enable them to advance towards the Bulgarian frontier with all kinds of wheeled transport in case of war, and the road which was being constructed under the supervision of Italian engineers seems to be a fine piece of engineering, skilfully carried out under difficult conditions. After visiting Sofia, he was fortunate enough to obtain permission to witness the Bulgarian Army Manœuvres in 1906, and he appears to have formed a high opinion of the excellent quality of the Bulgarian troops, and of the intelligent interest taken in their work by the officers. The men are for the most part sturdy peasants, who showed no signs of fatigue, and displayed an excellent spirit of zeal and cheerfulness. Mr. Woods seems to be something of a pro-Bulgar, and he considers that the Bulgarian Army for its size is vastly superior to any other force it is likely to have to encounter; this result being due to the painstaking efforts of the officers and the hardy and enduring nature of the men. The Bulgarian Army has already shown its mettle in the war with Servia, but it may be doubted if it would walk over the Turkish troops in the way the author seems to imply.

The last chapter but one is devoted to a description of a short run in Asia Minor through the country lying between Sinope and Haidar-Pasha, on the Sea of Marmora, the western terminus of the future Bagdad Railway.

In his concluding chapter Mr. Woods gives a good deal of information about the railway systems in the Balkan Peninsula, Asia Minor, and Syria (including the new railway to Medina), which should be useful to those who take an interest in following the development of affairs in the Near East. Few people probably realise the extent of railway communication which now exists in Syria and the Hedjaz, or the strategic importance that these lines may have in the near future. As the author points out, the Bagdad and Hedjaz railways combined will possess enormous political importance for the Sultan, who, by taking the great personal interest he has in the latter railway, and seeing that the construction of the line has been honestly carried out, has appealed to the feelings of Mahommedans all over the world, while the making of the pilgrimage to the Holy Cities so much easier than in the past as the new railway does, has done much to strengthen the position of the Padishah as Caliph, which will probably compensate him fully for the loss of temporal power he has suffered. A point to be noted is that, when the railways of Asia Minor and Syria are joined up it will be possible to convey troops in perfect safety almost to the boundary of Egyptian territory and place them where they might well prove a serious menace to our interests.

We may add that the author has illustrated his work with over sixty photographs taken by himself, some of which are excellent, and in spite of its somewhat necessarily sketchy character, we can congratulate Mr. Woods upon having produced a book which should prove interesting to many readers.

The Admiralty of the Atlantic. By PERCIVAL A. HISLAM. Longmans, Green & Co. London, 1908.

The title of this book is somewhat misleading, but the author presumably selected it, having remembrance of a certain farewell signal made by the Kaiser to the Tsar some years ago after a meeting at Revel, in which he was reported to have styled himself "Admiral of the Atlantic." However that may be the Atlantic is scarcely mentioned, and the work is really what the author afterwards describes it to be, "An enquiry into the development of German sea power, past, present, and prospective," with his views on the strategical position in the North Sea, where, in his opinion, the future naval Armageddon is to be fought out between this country and Germany. Whether the title is inappropriate or not, however, we have no hesitation in saying that there is a great deal of valuable information in the book, which the author has displayed considerable pains in putting together, and which should prove very useful to many a "man in the street" who may probably be attracted by the title to read it.

In the opening chapter Mr. Hislam deals with the earlier history of Germanic attempts to found a Navy, and it is a pity that he has omitted all mention of the fleet founded and maintained by the old Hanseatic League, which during the 14th and 15th centuries rendered excellent service in the wars against the Danes and in keeping the North Sea and Baltic open to trade, and to the deeds of which Germans of to-day look back upon with a not undeserved amount of pride. Other chapters are devoted to detailed descriptions of the German fleet of to-day, of German shipbuilding resources, and the naval bases of the Fatherland. In the chapter dealing with the German naval bases the author somewhat boldly touches on the strategic position in the North Sea, but there is much in his observations with which most naval experts will agree, and the same may be said in regard to his advocacy of the policy of building floating docks, in view of the lack of proper docking facilities for our latest battle-ships and giant cruisers on the East Coast, and the comparative rapidity and cheapness with which floating docks can be built, joined to their mobility. Even in the chapters in which he deals with the North Sea as the future war amphitheatre, with our naval policy and our naval bases, and the question of the possibility of the invasion of this country, trenching again as they do on the region of strategy, there is really very little in what the author says to which serious exception can be taken; while in the chapter in which he touches on our shipbuilding policy he takes a very reasonable view of our position, although he emphasises the necessity of our laying down at least four large armoured ships a year for some years to come. In his final chapter he gives a brief sketch of the Navies of the world,

and in describing the early days of the Japanese, although he mentions Admiral Sir A. Douglas as one of the British officers to whom the Japanese Navy owes so much, he has omitted the name of the late Admiral Sir R. Tracey, who was in charge of the first Naval Mission lent by the English Government in 1867, to that of Japan. Mr. Hislam is a young writer, and if he occasionally gets out of his depth it is no great wonder, but there is no reason why he should not in time develop into an expert writer on naval questions, which evidently seems to be his ambition. In his "Admiralty of the Atlantic," even with its occasional slips and the somewhat too cocksure manner in which he writes about certain highly debatable questions, he has not made a bad beginning.

PRINCIPAL ADDITIONS TO LIBRARY, DECEMBER, 1908.

La Crise Navale. By CHARLES CHAUMET. Crown 8vo. (Presented.) (R. Chapelot et Cie.) Paris, 1909.

The Story of 1812. By Colonel H. D. HUTCHINSON. Crown 8vo (Presented.) (W. Thacker & Co.) Simla, 1897.

The Operations in the Peninsula, 1808-1809. A Lecture delivered at Aldershot on 5th June, 1905. By Major-General H. D. HUTCHINSON. (Presented.) (Hugh Rees, Ltd.) London, 1905.

War on the Sea—Strategy and Tactics. By Le Capitaine G. DARRIENS. Translated by Professor P. R. ALGER, U.S.N. 8vo. (Presented.) (Wm. Dawson & Sons, Ltd.) London, 1908.

Handbook of the Medical Services of Foreign Armies. Part II. Germany. Official. Crown 8vo. 6d. (Presented.) (Harrison & Sons.) London, 1908.

Records of the Norfolk Yeomanry Cavalry from 1780 *to* 1908. Compiled by Lieut.-Colonel J. R. Harvey. Imp. 8vo. (Jarrold & Sons.) London, 1908.

Aldershot Military Society :—

96. Taylor, Lieutenant A. C., Scottish Rifles. A Military Retrospect (1907-1815) and a Surmise. 1908.

97. O'Dowda, Captain J. W., Brigade-Major, 5th Infantry Battalion. A Summary of the Campaigns which led up to the Wilderness Campaign in 1864. 1908.

Topographical Surveying and Sketching. By Major THOMAS H. REES, U.S.A. 8vo. (Presented.) Fort Leavenworth, 1908.

Horses of Different Countries. By Major J. MOORE. 8vo. (Presented.) London, 1904.

The Story of the Submarine. By Lieut.-Colonel C. FIELD. 8vo. 6s. (Presented.) (Sampson Low, Marston & Co., Ltd.) London, 1908.

The Story of the Franco-Prussian War 1870 (From 15th July to 18th August). By Lieut.-Colonel H. M. BRUNKER. 8vo. 5s. (Presented.) (Forster, Groom & Co., Ltd.) London, 1908.

Elementary Military Training. By Lieut.-Colonel A. W. A. POLLOCK. 8vo. 4s. (Presented.) (William Clowes & Sons, Ltd.) London, 1908.

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Capt. R. D. Barbor, Army Service Corps.
,, C. L. Norman, M.V.O., Indian Army.
,, G. L. Pepys, Indian Army.

The following obtained nominations:

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Capt. R. Hutchison, 11th Hussars.
,, E. F. Calthrop, Royal Field Artillery.
,, and Bt. Maj. A. J. Turner, Royal Field Artillery.
,, and Bt. Maj. C. B. Thomson, Royal Engineers.
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